



*Environmental Engineering, Civil Engineering
Forensic Engineering, Construction Services*

**ADMINISTRATIVE CONSENT ORDER
PROGRESS REPORT
AUGUST 2019**

**Former United Shoe Machinery Division North Parcel
181 Elliott Street
Beverly, MA 01915**

Prepared for:

Cummings Properties, LLC
200 West Cummings Park
Woburn, MA 01801

Prepared by:

FSL Associates, Inc.
358 Chestnut Hill Avenue
Boston, MA 02135

September 13, 2019

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1.0 INTRODUCTION

This Progress Report was prepared to detail the field and sampling activities associated with the former United Shoe Machinery (USM) Division North Parcel at 181 Elliott Street in Beverly, Massachusetts (also referred to as the “Site”). Actions completed in this report relate to the approved Written Proposal/Sampling and Analysis Plan Revision 2 (“SAP”) for the Site dated September 29, 2017. Refer to the attached **Figure 1** for the site locus and **Figure 2** for the site plan.

This Site has been identified in the RCRA 2020 Corrective Action Universe list established by the United States Environmental Protection Agency (EPA). By the year 2020, EPA and the authorized states plan to have largely completed the work of implementing final remedies at all facilities requiring Corrective Action. This Site is listed under site number MAD 043415991 as USM Machinery Division. As part of the RCRA 2020 program, EPA is overseeing an audit of the historical remedial actions conducted at the property by the former property owner, Stanley Black & Decker. EPA Region 1 has been working with the current owner’s representative, Cummings Properties, LLC, on this Site since 2009, and in EPA’s opinion, more sampling data are potentially needed to, among other things, understand whether vapor intrusion may be impacting indoor air quality and posing a threat to human health.

As part of EPA’s audit and review of existing sampling data, EPA has required further examination to determine:

- whether vapor intrusion is occurring at locations identified by EPA, including buildings 100, 500, and 600;
- whether contamination exists in the Shoe Ponds that presents ecological risk to aquatic life;
- whether all underground storage tanks have been removed or properly abandoned, if there are releases to the environment from the tanks, and the nature and extent of any migration of contamination from existing tanks;
- whether residual polychlorinated biphenyl (PCB) contamination exists on the fourth floor of Building 100 (formerly occupied by the North Shore Regional Vocational School) in or proximate to the former machine shop and any other area on-site where PCBs were used/managed/released and/or identified as a contaminant of concern; and

- whether the PCB disposal areas (former chip grind shed and former ballfield area) meet the requirement of 40 CFR § 761.61 and the January 9, 1997 approval letter from EPA, including but not limited to the following:
 - (1) required protective cover,
 - (2) required cover maintenance,
 - (3) required AUL documentation, and
 - (4) appropriate documentation to verify that stabilized PCB contaminated soils were placed at least one foot above the high water table so that no migration of PCBs to groundwater is occurring.

These requirements were set forth in an Administrative Consent Order (ACO) between EPA and Cummings Properties, LLC with an effective date of April 13, 2017.

Specifically, this report documents actions that have taken place in August 2019 in furtherance of the work required in the ACO. Work was done in accordance with the SAP, as updated September 29, 2017.

2.0 AUGUST 2019 INDOOR AIR AND SOIL GAS SAMPLING AND ANALYSIS

Although no field sampling was performed as part of the SAP and Elliott Landing SAP in August 2019, soil gas and indoor air samples were collected outside the SAP scope of work. These samples were collected for the purpose (initiated by similar sample collection in May 2019) of identifying a possible indoor building source for potentially elevated indoor air contaminants within Suite 135C in Building 100. A Supplemental Sampling and Analysis Plan for Vapor Intrusion was submitted on March 29, 2019. This plan was approved by EPA on April 24, 2019. Previous actions taken in April 2019 included additional modifications to the HVAC system for Building 100 at Suites 135C and 140A in preparation for the additional sampling in the supplemental sampling and analysis plan. An initial round of indoor air and soil gas sampling related to the Supplemental Sampling and Analysis Plan for Vapor Intrusion was collected from May 2-4, 2019. These data indicated there were no significant changes in the May 2019 air results when compared to previous sampling results for soil gas in Suite 135C, indoor air for Suite 140A, and the outdoor control sample. However, there were significant decreases in indoor air concentrations of petroleum hydrocarbons (air-phase petroleum hydrocarbons [APH], trimethylbenzenes, xylenes, and ethylbenzene) in Suite 135C. The APH fractions (the primary risk drivers) in all samples in this suite dropped below the MassDEP residential threshold values. In some cases, the APH fraction concentrations dropped by more than an order of magnitude. These data continue to suggest that the presence of petroleum hydrocarbons in Suite 135C is predominantly due to Suite 140A as an indoor source. In addition, the consistent lack of significant compound concentrations in soil gas correlated with a lack of a significant concentrations in indoor air.

The purpose of continued sampling in August 2019 was to provide another round of data post-HVAC alterations and to determine if the data results from May 2019 could be replicated. In addition, soil gas and indoor air samples were collected from a portion of the Elliott Landing building, where soil gas samples had been previously collected in January 2018 and April 2018 (indoor air was not previously sampled). At Elliott Landing in January 2018, one soil gas sample (SG-3) had a single compound (naphthalene) with concentrations that exceeded residential soil gas screening levels. This exceedance was not replicated in the April 2018 sampling. August 2019 sampling consisted of collecting soil gas samples from point SG-3 as well as the nearby locations, SG-1 and SG-2, and collecting indoor air samples adjacent to soil gas points SG-1, SG-2, and SG-3. The sampling in Elliott Landing was performed to validate the initial conclusion that the single elevated soil gas detection of naphthalene was an anomaly.

The indoor air and soil gas sampling was conducted from August 8-10, 2019. Indoor air samples were collected from Suites 135C and 140A (in Building 100) and at Elliott Landing, along with an outdoor control sample outside Suite 135C. Soil gas samples were collected from existing points in Suite 135C and Elliott Landing. Indoor air samples were collected on August 8-9, 2019 and soil gas samples were collected on August 10, 2019.

Indoor air samples were collected in accordance with the protocols of the SAP. For each of the noted indoor air sample locations (see **Figures 3 and 5**), a single air sample was collected. Samples were collected using a 6-liter canister for the purposes of collecting a 24-hour composite. Canisters and regulators were provided by Alpha Analytical of Mansfield, MA. One canister was placed in each of the sampling locations as noted in **Figures 3 and 5**. The locations were the same as those used in July 2018, December 2018, and May 2019 for Suite 140A. The locations for Suite 135C were the same as those used in December 2018 and May 2019 and were as close as possible to those used for the January 2018 and April 2018 sampling efforts. Locations were not exact in Suite 135C for the January 2018 and April 2018 sampling efforts because the December 2018, May 2019, and August 2019 samples were collected during active daycare operations with children present, so the canisters had to be relocated slightly to make them inaccessible to the children (samples collected in January 2018 and April 2018 occurred over weekends when the daycare was closed). Sample S-135C.1 was moved to the top of a bookcase and Sample S-135C.3 was moved to the center of a table. A separate canister as a field duplicate was also collected in Suite 135C. An outdoor control sample was collected near the air intake for Suite 135C.

For each of the soil gas points installed in Suite 135C (see **Figure 4**) and points SG-1, SG-2, and SG-3 in Elliott Landing (see **Figure 5**), a single air sample was collected. Samples were collected using a 2.7-liter canister for the purposes of collecting a 30-minute composite. Canisters and regulators were provided by Alpha Analytical of Mansfield, MA. One canister was placed in each of the sampling locations as described above. A separate canister as a field duplicate was also collected.

Details on the sampling canisters are provided in **Appendix A**. The canisters were received by Alpha Analytical on August 12, 2019 under a chain of custody. Samples were requested for analysis for Air-Phase Petroleum Hydrocarbons (APH) and VOCs using EPA Method TO-15.

Sample analysis was requested to be performed in the SIM mode to obtain the lowest achievable (most conservative) detection limits. In accordance with the APH analytical method, the potential identification of non-APH compounds (such as chlorinated solvents, ketones, and ethers) may represent an interference with the quantitative response within the aliphatic or aromatic hydrocarbon range. A specific request was made for non-APH compounds to be identified in the laboratory report form or narrative, such that the data may be evaluated for such potential interference.

The results of the indoor air laboratory analysis for Suite 135C are shown in **Table 1**, and the full laboratory analytical report is included in **Appendix A**. The results of the indoor air laboratory analysis for Suite 140A are shown in **Table 2**. The results of the air laboratory analysis for the outdoor control sample are shown in **Table 3**. The results of the indoor air laboratory analysis for Elliott Landing are shown in **Table 4**. In **Tables 1-4**, the indoor air results are directly compared to the residential threshold values from the MassDEP Vapor Intrusion Guidance Policy WSC# 16-435 (October 2016) and the EPA Target Risk values (carcinogenic = 1E-06 or Hazard Index = 0.1; from the Regional Screening Level Resident Ambient Air Supporting Table updated November 2017). **Tables 1-3** also include results from samples collected in the same locations in 2018 and 2019 for Suites 135C and 140A, and from 2012 for outdoor control samples. The results of the soil gas laboratory analysis for Suite 135C are shown in **Table 5**, and the full laboratory analytical reports are included in **Appendix A**. The results of the soil gas laboratory analysis for Elliott Landing are shown in **Table 6**. In **Tables 5-6**, the soil gas results are directly compared to the residential sub-slab soil gas screening levels from the Massachusetts Department of Environmental Protection (MassDEP) Vapor Intrusion Guidance Policy WSC# 16-435 (October 2016). These tables also include results from samples collected in 2018.

The foregoing tables indicate there were no significant changes in the May 2019 or August 2019 air results when compared to previous sampling results for the soil gas in Suite 135C, the indoor air for Suite 140A, or for the outdoor control sample (with the exception of an elevated concentration of naphthalene in a single soil gas sample at point SV-7 in Suite 135C; there was no significant increase in the naphthalene concentration in the indoor air). However, there were significant decreases in indoor air concentrations of petroleum hydrocarbons (APH, trimethylbenzenes, xylenes, and ethylbenzene) in Suite 135C. The APH fractions (the primary risk drivers) in all samples in this suite dropped below the MassDEP residential threshold values in May 2019; in some cases the APH fractions concentrations dropped by over an order of magnitude. For August 2019, there was a slight increase in the APH fraction C₅-C₈ Aliphatics in indoor air in Suite 135C to levels that were just above the residential threshold values from the MassDEP Vapor

Intrusion Guidance Policy; this increase does not add a significant amount of additional risk to human health.

The remaining conclusions from the May 2019 indoor air and soil gas samples in Building 100 were validated by the August 2019 sampling. The data continue to suggest that the presence of petroleum hydrocarbons in Suite 135C are predominantly due to Suite 140A as an indoor source. The continued lack of significant compound concentrations in soil gas further suggests that vapor intrusion is not occurring. The only significant changes between December 2018 and May/August 2019 were HVAC changes to Suite 135C; therefore, one would not expect any significant differences in air or soil gas quality other than in the indoor air in Suite 135C. This hypothesis was confirmed by the May 2019 and August 2019 results. The remaining air contaminants as risk drivers (1,2-dichloroethane, chloroform, and carbon tetrachloride) were also detected at Suite 140A at concentrations either comparable or greater than those found in Suite 135C, suggesting that these compounds are indicative of exterior ambient air or overall building air quality.

In Elliott Landing, there were no exceedances of screening values in soil gas samples. In most cases the maximum concentrations were orders of magnitude less than the screening values. For indoor air, there were several compounds that were detected in concentrations greater than the residential threshold values. However, these air contaminants (1,2-dichloroethane, chloroform, and carbon tetrachloride) were also detected at concentrations comparable with the concentrations detected in Suites 135C and 140A, suggesting that these compounds are indicative of exterior ambient air or overall air quality.

Given the results of this most recent round of vapor intrusion-related sampling, it appears conclusive that vapor intrusion is not a significant exposure pathway at this site. Therefore, no additional sampling and analysis for vapor intrusion purposes is necessary.

3.0 ADDITIONAL AUGUST 2019 ACTIVITIES

On August 18, 2019, EPA provided additional comments on the Quality Assurance Project Plan Addendum Revision 1 for the Baseline Ecological Risk Assessment (BERA) previously submitted in November 2018. These comments are currently being reviewed.

4.0 NEXT SCHEDULED ASSESSMENT ACTIVITIES

There are currently no assessment activities scheduled for September 2019.

FIGURES

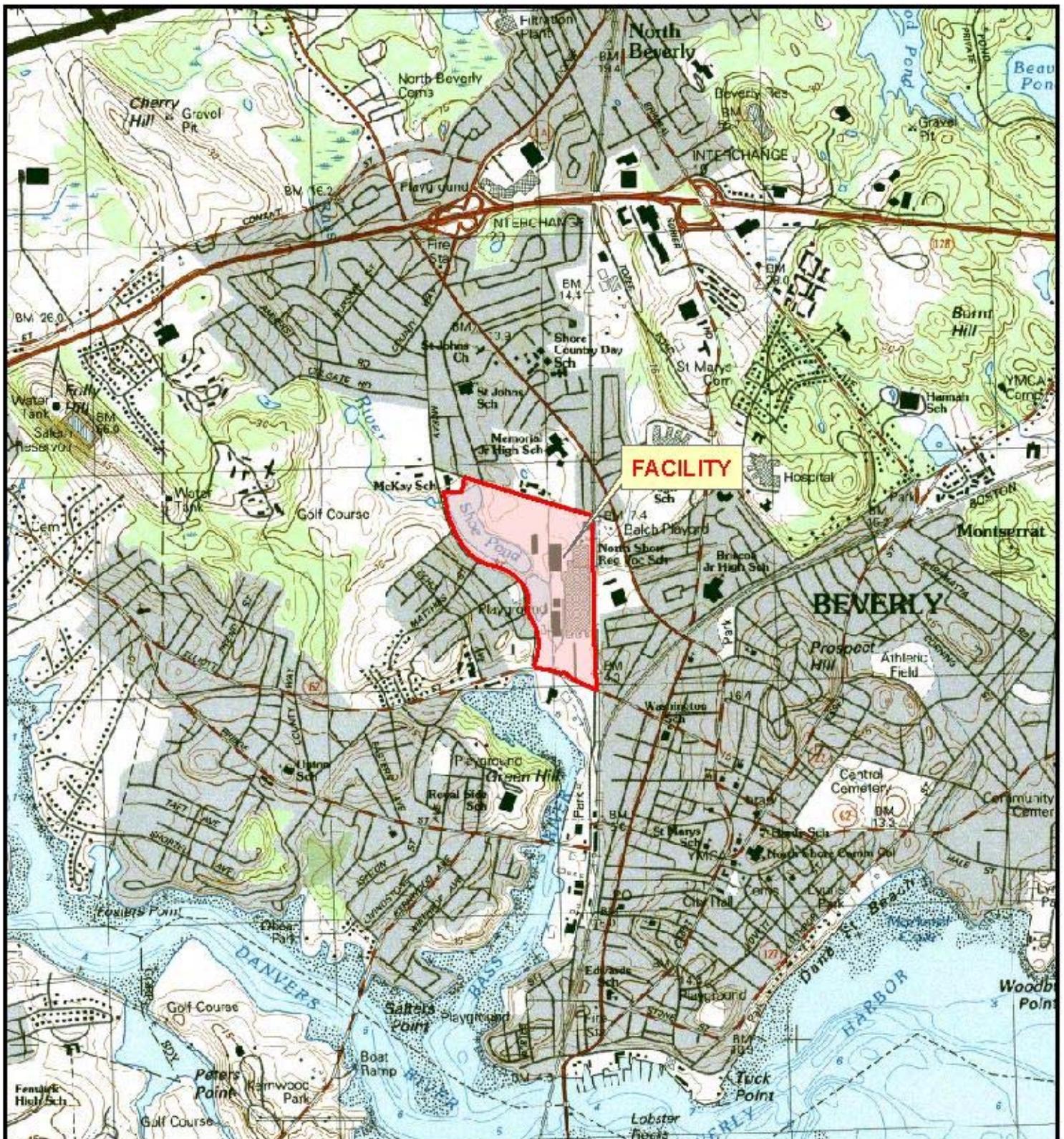
Figure 1 – Locus Plan

Figure 2 – Site Plan

Figure 3 – Indoor Air Sampling Locations – 100 Cummings Center, Suites 135C and 140A

Figure 4 – Soil Gas and Indoor Air Sampling Locations – 100 Cummings Center, Suite 135C

Figure 5 – Soil Gas and Indoor Air Sampling Locations – Elliott Landing



SITE COORDINATES
 Longitude: -70.8871 W
 Latitude: 42.5596 N
 UTM 4,713,634m N
 345,086m E

Approximate Scale: 1 inch = 2,000 feet (1:24,000)
 0 1,000 2,000 4,000 6,000
 Feet

Figure 1 - Locus Plan

Project Number: 12201
 Client: Cummings

Created By: EAF Date: 03/15/12
 Checked By: BH Date: 03/15/12

Former United Shoe Machinery North Parcel
 181 Elliott Street
 Beverly, MA

Reference: MassGIS USGS Quadrangle: SALEM and MARBLEHEAD NORTH
 Image: M12201_Beverly/2012/Figures



FIGURE 2

SITE PLAN



Figure 3

Indoor Air Sampling Locations
100 Cummings Center- Suites 135C & 140A

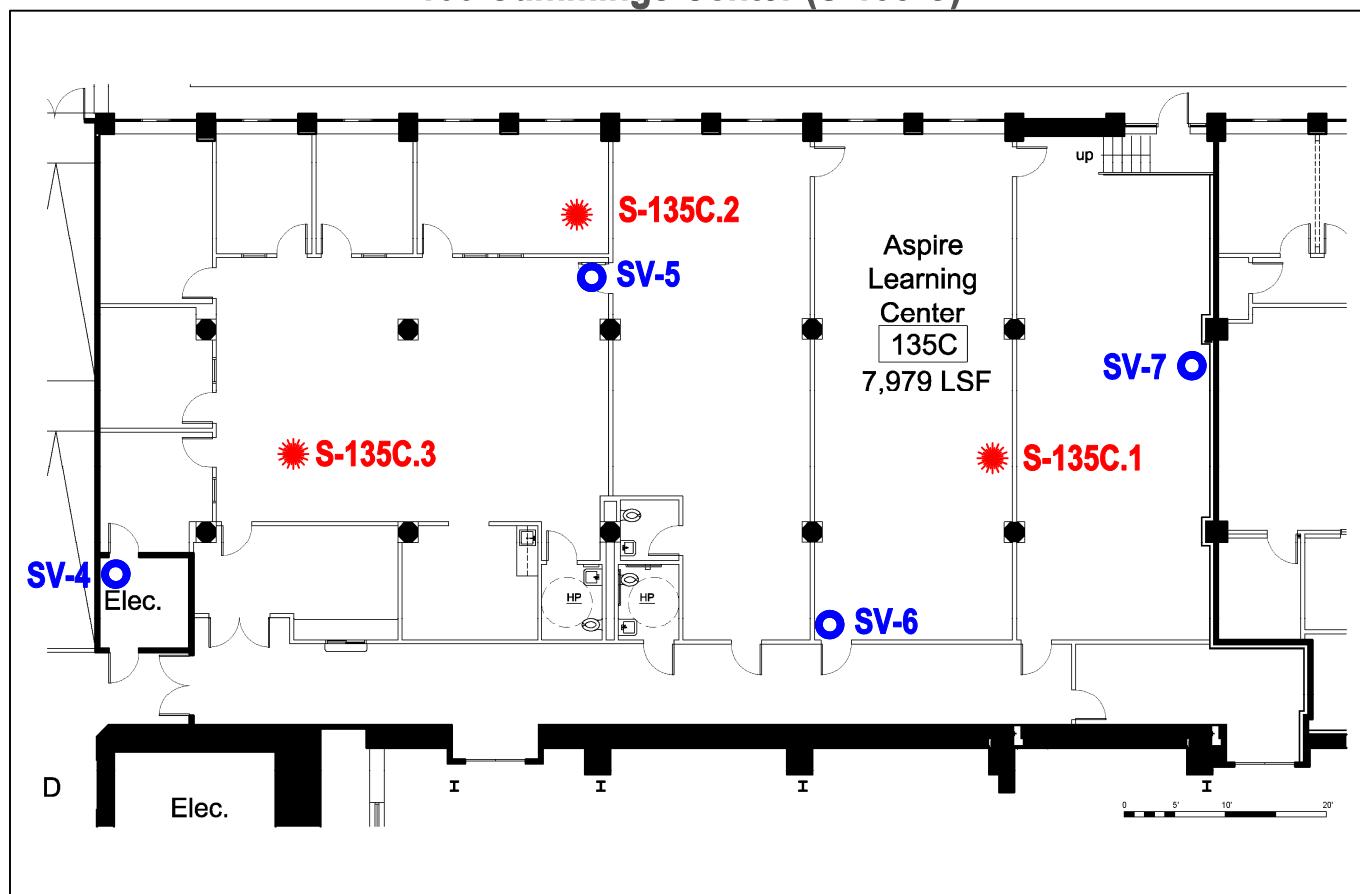


358 Chestnut Hill Ave
Boston MA 02135
(617) 232-0001

★ Indoor Air Sample

N

Figure 4
Soil Gas and Indoor Air Sampling Locations
Aspire Learning Center
100 Cummings Center (S-135-C)



358 Chestnut Hill Ave
Boston MA 02135
(617) 232-0001

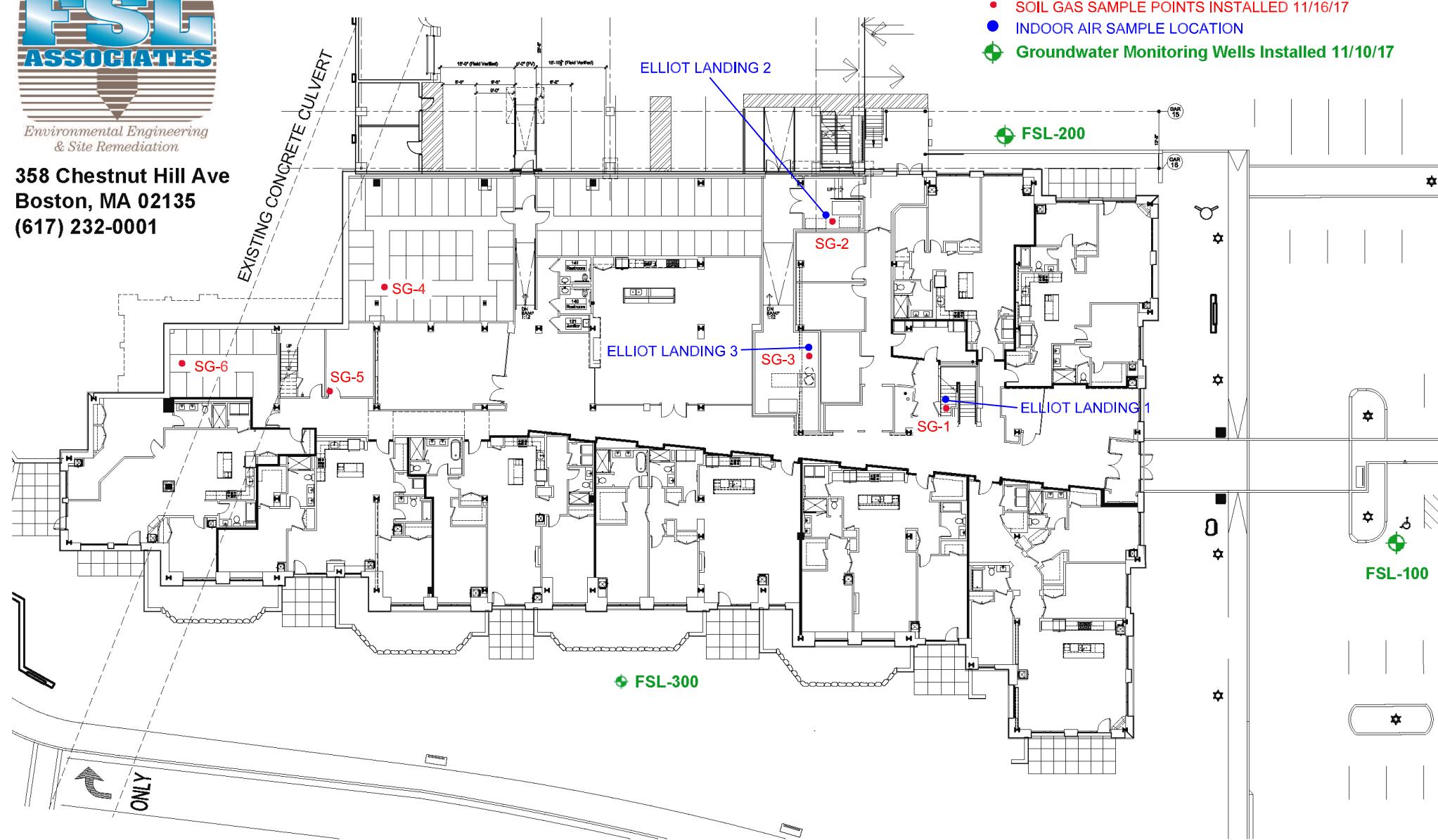
- Soil Gas Point Installed on 11/14/17
- Indoor Air Sample

Figure 5
Elliott Landing

SOIL GAS, INDOOR AIR, & GROUNDWATER SAMPLING LOCATIONS



358 Chestnut Hill Ave
Boston, MA 02135
(617) 232-0001



TABLES

Table 1 – Indoor Air Chemical Analysis Results – Building 100, Suite 135C, 2018-2019

Table 2 – Indoor Air Chemical Analysis Results – Building 100, Suite 140A, 2018-2019

Table 3 – Indoor Air Chemical Analysis Results – Outdoor Control Samples, 2012-2019

Table 4 – Indoor Air Chemical Analysis Results – Elliott Landing, 2019

Table 5 – Soil Gas Chemical Analysis Results – Building 100, Suite 135C, 2018-2019

Table 6 – Soil Gas Chemical Analysis Results – Elliott Landing, 2018-2019

TABLE 1

Indoor Air Chemical Analysis Results - Building 100 Suite 135-C

Cummings Center, Beverly, MA

2018-2019

TABLE 1

Indoor Air Chemical Analysis Results - Building 100 Suite 135-C

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-135C.1	S-135C.1	Duplicate of S-135C.1	S-135C.1	S-135C.1	Duplicate of S-135C.1	S-135C.1	Duplicate of S-135C.1
Sample Location	Building 100 Interior, Suite 135-C							
Sample Type	Indoor Air							
Date Sampled	1/13/2018 to 1/14/2018	4/28/2018 TO 4/29/2018	4/28/2018 TO 4/29/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	<0.60	<0.60	<0.60	0.82	<0.60	<0.60	<0.60	<0.60
Toluene	16	2.5	2.3	19	1.5	1.4	2.2	2.2
Ethylbenzene	<0.90	<0.90	<0.90	2.0	<0.90	<0.90	<0.90	<0.90
m- & p- Xylenes	2.1	1.4	1.3	7.4	<0.90	<0.90	2.7	2.7
o-Xylenes	<0.90	<0.90	<0.90	2.4	<0.90	<0.90	1.0	1.0
Naphthalene	1.6	5.0	3.8	4.2	<1.1	1.7	1.7	1.1
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	290	32	40	82	18	20	65	66
C ₉ -C ₁₂ Aliphatic Hydrocarbons	60	120	100	370	12	20	39	36
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	<10	<10	25	<10	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Supporting Table, November

2017. Values preceding "(H)" indicate compounds that are not considered to be carcinogenic and risk

levels are based on noncarcinogenic risk. "N/A" indicates compounds with no risk information available

from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Guidance, MassDEP

Policy WSC# 16-435, October 2016.

TABLE 1

Indoor Air Chemical Analysis Results - Building 1

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-135C.2	S-135C.2	S-135C.2	S-135C.2	S-135C.2	S-135C.3	Duplicate of S-135C.3	S-135C.3
Sample Location	Building 100 Interior, Suite 135-C							
Sample Type	Indoor Air							
Date Sampled	1/13/2018 to 1/14/2018	4/28/2018 TO 4/29/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	1/13/2018 to 1/14/2018	1/13/2018 to 1/14/2018	4/28/2018 TO 4/29/2018
Volatile Organic Compounds (µg/m³)								
1,1,1-trichloroethane	0.169	0.076	0.044 J	<0.033	<0.033	0.142	0.136	<0.050
1,1,1,2-tetrachloroethane	NR	<0.041	<0.041	<0.041	<0.041	NR	NR	<0.063
1,1,2,2-tetrachloroethane	<0.069	<0.048	<0.048	<0.048	<0.048	<0.069	<0.069	<0.074
1,1,2-trichloroethane	<0.055	<0.022	<0.022	<0.022	<0.022	<0.055	<0.055	<0.033
1,1-dichloroethane	0.049	0.041	0.049 J	<0.028	<0.028	0.041	0.041	<0.043
1,1-dichloroethene	<0.040	<0.028	<0.028	<0.028	<0.028	<0.040	<0.040	<0.042
1,2,4-trichlorobenzene	<0.074	<0.074	<0.074	<0.074	0.119 J	<0.074	<0.074	<0.114
1,2,4-trimethylbenzene	1.20	1.35	5.56	0.359	1.15	1.18	1.16	0.639
1,2-dibromoethane	<0.077	<0.062	<0.062	<0.062	<0.062	<0.077	<0.077	<0.094
1,2-dichlorobenzene	<0.060	<0.036	<0.036	<0.036	<0.036	<0.060	<0.060	<0.055
1,2-dichloroethane	0.134	0.134	0.166	0.146	0.134	0.134	0.130	0.093
1,2-dichloropropane	<0.046	<0.037	0.037 J	<0.037	<0.037	<0.046	<0.046	<0.056
1,3,5-trimethylbenzene	0.329	0.349	1.78	0.103	0.364	0.305	0.320	0.165
1,3-butadiene	0.029	0.04	0.091	<0.016	0.053	0.029	0.027	0.027
1,3-dichlorobenzene	<0.060	<0.036	<0.036	<0.036	<0.036	<0.060	<0.060	<0.055
1,4-dichlorobenzene	<0.060	<0.048	<0.048	<0.048	<0.048	<0.060	<0.060	<0.073
1,4-dioxane	<0.180	<0.051	0.051 J	<0.051	<0.051	<0.180	<0.180	<0.077
2,2,4-trimethylpentane	<0.126	0.196	0.383 J	0.350 J	0.598 J	<0.126	<0.126	<0.192
2-butanone	2.77	2.50	3.60	1.62	3.75	2.21	2.15	1.45
2-hexanone	0.316	0.258	0.229 J	<0.123	0.738 J	0.270	0.270	<0.188
3-chloropropene	<0.063	<0.063	<0.063	<0.063	<0.063	<0.063	<0.063	<0.096
4-Ethyltoluene	NR	0.315	1.79	0.093 J	0.285	NR	NR	0.165
Acetone	39.4	42.5	51.5	23.4	44.9	34.2	34.2	25.2
Benzene	0.403	0.396	0.748	0.348	0.578	0.409	0.409	0.244
Benzyl Chloride	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.293
Bromodichloromethane	<0.067	<0.054	0.094 J	<0.054	0.301	<0.067	<0.067	<0.082
Bromoform	<0.103	0.238	<0.155	<0.155	0.196 J	<0.103	<0.103	<0.237
Bromomethane	<0.039	0.035	<0.031	<0.031	0.058 J	0.039	<0.039	<0.047
Carbon disulfide	<0.196	<0.196	<0.196	<0.196	<0.196	<0.196	<0.196	<0.299
Carbon tetrachloride	0.510	0.566	0.453	0.491	0.541	0.547	0.522	0.355
Chlorobenzene	<0.046	<0.032	<0.032	<0.032	<0.032	<0.046	<0.046	<0.049
Chloroethane	0.103	0.045	0.048 J	<0.045	0.058 J	0.079	0.084	<0.068
Chloroform	0.205	0.269	8.84	0.493	0.679	0.200	0.190	0.194
Chloromethane	1.07	1.23	1.11	1.33	1.34	1.08	1.06	0.774
Cis-1,2-dichloroethene	<0.040	<0.028	<0.028	<0.028	<0.028	<0.040	<0.040	<0.042
Cis-1,3-dichloropropene	<0.045	<0.027	<0.027	<0.027	<0.027	<0.045	<0.045	<0.042
Cyclohexane	0.210	0.151	0.485 J	<0.103	0.382 J	0.286	0.286	<0.158
Dibromochloromethane	<0.085	<0.068	<0.068	<0.068	0.119	<0.085	<0.085	<0.104
Dichlorodifluoromethane	2.23	1.93	1.69	2.09	2.29	2.15	1.62	1.11
Ethanol	686	347	1770	1640	1230	624	618	205
Ethyl acetate	3.93	1.2	3.78	2.05	8.04	3.11	3.08	0.515
Ethylbenzene	0.404	0.369	1.62	0.195	0.782	0.356	0.352	0.238
Freon-113	0.491	0.598	0.483	0.583	0.491	0.506	0.491	0.363
Freon-114	<0.175	0.112	0.098 J	0.105 J	0.105 J	<0.175	<0.175	<0.124
Hexachlorobutadiene	<0.267	<0.075	<0.075	<0.075	<0.075	<0.267	<0.267	<0.114
Hexane	0.324	0.497	1.23	<0.116	0.659 J	0.310	0.310	0.441
Isopropyl alcohol	241	50.4	158	228	568	216	212	33.7
Methylene chloride	<0.869	0.903	<0.869	1.05 J	1.37 J	<0.869	1.05	<1.33
MBK	1.39	0.984	0.828 J	<0.021	0.967 J	1.18	1.16	0.492
MTBE	<0.036	<0.022	<0.022	<0.022	<0.022	<0.036	<0.036	<0.033
M+p-xylene	1.96	1.45	5.69	0.491	2.49	1.75	1.72	0.756
n-heptane	1.84	1.18	6.84	1.90	5.41	1.58	1.54	0.43
Naphthalene	2.90	4.16	2.66	1.90	2.30	2.97	3.25	1.57
o-xylene	0.491	0.460	1.89	0.191	0.951	0.465	0.456	0.245
Propylene	0.272	0.384	0.743 J	0.270 J	0.666 J	0.253	0.234	0.158
Styrene	2.86	0.64	0.370	0.243	0.477	2.91	2.88	0.331
Tetrachloroethylene	0.129	0.190	0.346	0.231	0.244	0.115	0.108	0.104
Tetrahydrofuran	0.321	0.543	1.67	0.746 J	1.32 J	0.265	0.265	0.507
Toluene	14.2	2.59	15.3	1.26	2.26	11.8	11.6	1.44
Trans-1,2-dichloroethene	<0.040	<0.024	<0.024	<0.024	<0.024	<0.040	<0.040	<0.036
Trans-1,3-dichloropropene	<0.045	<0.036	<0.036	<0.036	<0.036	<0.045	<0.045	<0.055
Trichloroethene	0.054	0.097	0.091 J	<0.038	0.081 J	0.054	0.054	0.058
Trichlorofluoromethane	1.64	2.75	1.39	1.49	2.25	1.57	1.56	1.76
Vinyl acetate	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.145
Vinyl bromide	<0.101	<0.101	<0.101	<0.101	<0.101	<0.101	<0.101	<0.153
Vinyl chloride	<0.026	<0.015	<0.015	<0.015	<0.015	<0.026	<0.026	<0.023

TABLE 1

Indoor Air Chemical Analysis Results - Building 1

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-135C.2	S-135C.2	S-135C.2	S-135C.2	S-135C.2	S-135C.3	Duplicate of S-135C.3	S-135C.3
Sample Location	Building 100 Interior, Suite 135-C							
Sample Type	Indoor Air							
Date Sampled	1/13/2018 to 1/14/2018	4/28/2018 TO 4/29/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	1/13/2018 to 1/14/2018	1/13/2018 to 1/14/2018	4/28/2018 TO 4/29/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	<0.60	<0.60	0.82	<0.60	<0.60	<0.60	<0.60	<0.60
Toluene	13	2.6	17	1.2	2.4	11	11	1.4
Ethylbenzene	<0.90	<0.90	1.8	<0.90	<0.90	<0.90	<0.90	<0.90
m- & p- Xylenes	1.8	1.4	6.4	<0.90	2.5	1.6	1.6	<0.90
o-Xylenes	<0.90	<0.90	2.1	<0.90	0.93	<0.90	<0.90	<0.90
Naphthalene	3.0	4.5	3.3	2.0	2.4	3.0	3.2	1.7
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	260	29	78	14	50	260	230	27
C ₉ -C ₁₂ Aliphatic Hydrocarbons	89	120	270	17	44	90	88	53
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	<10	23	<10	<10	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Site 2017.

2017. Values preceding "(H)" indicate compounds that are not considered to levels are based on noncarcinogenic risk. "N/A" indicates compounds with no from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Policy WSC# 16-435, October 2016.

TABLE 1

Indoor Air Chemical Analysis Results - Building 1

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-135C.3	S-135C.3	S-135C.3	Maximum Concentrations	Maximum Concentrations	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Building 100 Interior, Suite 135-C						
Sample Type	Indoor Air						
Date Sampled	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	January 2018 - August 2019	May 2019 - August 2019		
Volatile Organic Compounds (µg/m³)							
1,1,1-trichloroethane	0.060 J	<0.033	<0.033	0.169	Not Detected	520 (HI)	3
1,1,2-tetrachloroethane	<0.041	<0.041	<0.041	Not Detected	Not Detected	0.38	
1,1,2,2-tetrachloroethane	<0.048	<0.048	<0.048	Not Detected	Not Detected	0.048	0.04
1,1,2-trichloroethane	<0.022	<0.022	<0.022	Not Detected	Not Detected	0.18	0.15
1,1-dichloroethane	0.073 J	<0.028	<0.028	0.057	Not Detected	1.8	0.8
1,1-dichloroethene	<0.028	<0.028	<0.028	Not Detected	Not Detected	21 (HI)	0.8
1,2,4-trichlorobenzene	<0.074	<0.074	0.104 J	Not Detected	Not Detected	0.21 (HI)	0.4
1,2,4-trimethylbenzene	6.64	<0.034	1.24	6.64	1.24	6.3 (HI)	
1,2-dibromoethane	<0.062	<0.062	<0.062	Not Detected	Not Detected	0.0047	0.0078
1,2-dichlorobenzene	<0.036	<0.036	<0.036	0.144	0.144	21 (HI)	0.72
1,2-dichloroethane	0.235	0.166	0.150	0.295	0.295	0.11	0.09
1,2-dichloropropane	0.051 J	<0.037	<0.037	0.037	Not Detected	0.76	0.12
1,3,5-trimethylbenzene	2.13	0.118	0.379	2.13	0.379	6.3 (HI)	
1,3-butadiene	0.089	<0.016	0.051	0.097	0.053	0.094	
1,3-dichlorobenzene	<0.036	<0.036	<0.036	Not Detected	Not Detected	21(HI)	0.6
1,4-dichlorobenzene	<0.048	<0.048	0.066 J	Not Detected	Not Detected	0.26	0.5
1,4-dioxane	0.094 J	<0.051	<0.051	0.072	Not Detected	0.56	0.47
2,2,4-trimethylpentane	0.369 J	0.360 J	0.589 J	0.224	Not Detected	N/A	
2-butanone	4.72	1.78	3.98	4.72	4.07	520(HI)	12
2-hexanone	0.352 J	<0.123	0.877	0.926	0.926	3.1(HI)	
3-chloropropene	<0.063	<0.063	<0.063	Not Detected	Not Detected	0.47	
4-Ethyltoluene	2.00	0.113	0.315	2.00	0.315	N/A	
Acetone	62.2	24.9	45.6	62.2	48.2	3,200(HI)	91
Benzene	0.703	0.348	0.534	0.754	0.578	0.36	2.3
Benzyl Chloride	<0.192	<0.192	<0.192	Not Detected	Not Detected	0.057	
Bromodichlormethane	0.067 J	<0.054	0.275	0.301	0.301	0.076	0.13
Bromoform	<0.155	<0.155	<0.155	0.238	Not Detected	2.6	2.1
Bromomethane	<0.031	<0.031	0.051 J	0.074	Not Detected	0.52(HI)	0.6
Carbon disulfide	<0.196	<0.196	<0.196	Not Detected	Not Detected	73 (HI)	
Carbon tetrachloride	0.453	0.478	0.535	0.616	0.547	0.47	0.54
Chlorobenzene	<0.032	<0.032	<0.032	Not Detected	Not Detected	5.2 (HI)	2.3
Chloroethane	0.045 J	0.169 J	0.045 J	0.103	Not Detected	1,000 (HI)	
Chloroform	6.49	0.581	0.728	9.47	0.728	0.12	1.9
Chloromethane	1.18	1.32	1.28	1.41	1.41	9.4 (HI)	
Cis-1,2-dichloroethene	<0.028	<0.028	<0.028	Not Detected	Not Detected	N/A	0.8
Cis-1,3-dichloropropene	<0.027	<0.027	<0.027	Not Detected	Not Detected	0.7	0.58
Cyclohexane	0.410 J	<0.103	0.399 J	0.286	Not Detected	100 (HI)	
Dibromochlormethane	<0.068	<0.068	<0.068	0.119	0.119	N/A	0.097
Dichlorodifluoromethane	1.66	2.08	2.27	2.35	2.35	10 (HI)	
Ethanol	2520	1820	1380	2520	2410	N/A	
Ethyl acetate	3.75	2.46	8.58	8.58	8.58	7.3 (HI)	
Ethylbenzene	2.56	0.230	0.782	2.56	0.782	1.1	7.4
Freon-113	0.483	0.514	0.567	0.667	0.583	520 (HI)	
Freon-114	0.105 J	0.098 J	0.105 J	0.119	Not Detected	N/A	
Hexachlorobutadiene	<0.075	<0.075	<0.075	Not Detected	Not Detected	0.13	0.11
Hexane	1.16	<0.116	0.648 J	1.31	Not Detected	73 (HI)	
Isopropyl alcohol	121	263	779	779	779	21 (HI)	
Methylene chloride	<0.869	1.31 J	1.49 J	1.34	Not Detected	100	11
MBIB	0.906 J	<0.021	1.01 J	1.70	Not Detected	310 (HI)	2.2
MTBE	<0.022	<0.022	<0.022	Not Detected	Not Detected	11	39
M+p-xylene	9.90	0.560	2.77	9.90	2.77	10 (HI)	20
n-heptane	7.13	2.41	4.55	7.91	7.29	42 (HI)	
Naphthalene	2.01	2.40	3.21	4.59	3.21	0.083	0.6
o-xylene	2.87	0.217	1.04	2.87	1.04	10 (HI)	20
Propylene	0.644 J	0.303 J	0.599 J	0.384	Not Detected	310 (HI)	
Styrene	0.375	0.294	0.605	2.91	0.783	100 (HI)	1.4
Tetrachloroethylene	0.298	0.210	0.203	0.468	0.468	11	1.4
Tetrahydrofuran	1.22 J	0.599 J	1.68	1.92	1.68	210 (HI)	
Toluene	21.2	1.40	2.26	21.2	2.26	520 (HI)	54
Trans-1,2-dichloroethene	<0.024	0.056 J	<0.024	Not Detected	Not Detected	N/A	0.8
Trans-1,3-dichloropropene	<0.036	<0.036	<0.036	Not Detected	Not Detected	0.7	0.58
Trichloroethene	0.091 J	<0.038	<0.038	0.102	Not Detected	0.48	0.4
Trichlorofluoromethane	1.50	1.50	2.48	2.93	2.87	N/A	
Vinyl acetate	<0.095	<0.095	<0.095	Not Detected	Not Detected	21 (HI)	
Vinyl bromide	<0.101	<0.101	<0.101	Not Detected	Not Detected	0.088	
Vinyl chloride	<0.015	<0.015	<0.015	Not Detected	Not Detected	0.17	0.27

TABLE 1

Indoor Air Chemical Analysis Results - Building 1

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-135C.3	S-135C.3	S-135C.3	Maximum Concentrations	Maximum Concentrations	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Building 100 Interior, Suite 135-C						
Sample Type	Indoor Air						
Date Sampled	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	January 2018 - August 2019	May 2019 - August 2019		
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)							
1,3-Butadiene	<0.50	<0.50	<0.50	Not Detected	Not Detected	0.094	
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	Not Detected	Not Detected	11	39
Benzene	0.76	<0.60	<0.60	0.82	Not Detected	0.36	2.3
Toluene	24	1.2	2.4	24	2.4	520 (HI)	54
Ethylbenzene	2.8	<0.90	<0.90	2.8	Not Detected	1.1	7.4
m- & p- Xylenes	11	<0.90	2.8	11	2.8	10 (HI)	20
o-Xylenes	3.1	<0.90	1.0	3.1	1.0	10 (HI)	20
Naphthalene	2.4	2.4	3.4	5.0	3.4	0.083	0.6
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)							
C ₅ -C ₈ Aliphatic Hydrocarbons	80	18	68	290	68	N/A	58
C ₉ -C ₁₂ Aliphatic Hydrocarbons	440	16	58	440	58	N/A	68
C ₉ -C ₁₀ Aromatic Hydrocarbons	28	<10	<10	28	Not Detected	N/A	10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Site 2017. Values preceding "(HI)" indicate compounds that are not considered to

levels are based on noncarcinogenic risk. "N/A" indicates compounds with no

from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion

Policy WSC# 16-435, October 2016.

TABLE 2

Indoor Air Chemical Analysis Results - Building 100 Suite 140-A

Cummings Center, Beverly, MA

2018-2019

TABLE 2

Indoor Air Chemical Analysis Results - Building 100 Suite 140-A

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-140A.1	S-140A.1	S-140A.1	S-140A.1	S-140A.2	S-140A.2	S-140A.2	S-140A.2	S-140A.3
Sample Location	Building 100 Interior, Suite 140	A	A	A	A	Building 100 Interior, Suite 140			
Sample Type	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air
Date Sampled	7/19/2018 to 7/20/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	7/19/2018 to 7/20/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	7/19/2018 to 7/20/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH ($\mu\text{g}/\text{m}^3$)									
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	<0.60	0.65	<0.60	<0.60	<0.60	0.67	<0.60	<0.60	<0.60
Toluene	15	6.7	74	8.0	20	9.3	69	11	13
Ethylbenzene	9.6	2.0	<0.90	2.1	11	10	<0.90	3.0	33
m- & p- Xylenes	60	7.9	2.6	7.1	70	47	2.9	10	230
o-Xylenes	21	3.0	0.98	4.6	24	18	1.1	5.1	76
Naphthalene	1.7	<1.1	<1.1	<1.1	2.3	<1.1	1.6	<1.1	3.0
Air-Phase Petroleum Hydrocarbons - APH ($\mu\text{g}/\text{m}^3$)									
C ₅ -C ₈ Aliphatic Hydrocarbons	61	100	92	250	110	180	100	240	26
C ₉ -C ₁₂ Aliphatic Hydrocarbons	740	420	110	610	1000	1500	280	700	300
C ₉ -C ₁₀ Aromatic Hydrocarbons	98	58	21	180	98	160	55	160	62

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in $\mu\text{g}/\text{m}^3$

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Supporting Table, November 2017. Values preceding "HII" indicate compounds that are not considered to be carcinogenic and risk levels are based on noncarcinogenic risk. "N/A" indicates compounds with no risk information available from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Guidance, MassDEP Policy WSCP 16-435, October 2016.

TABLE 2

Indoor Air Chemical Analysis Results - Building 10

Cummings Center, Beverly, MA

2018-2019

TABLE 2

Indoor Air Chemical Analysis Results - Building 1C

Cummings Center, Beverly, MA

2018-2019

Sample ID	S-140A.3	S-140A.3	S-140A.3	S-140A.4	S-140A.4	Duplicate of S-140A.4	Duplicate of S-140A.4	S-140A.4	S-140A.4
Sample Location	Building 100 Interior, Suite 140	Building 100 Interior, Suite 140	A	Building 100 Interior, Suite 140	A	Building 100 Interior, Suite 140	A	Building 100 Interior, Suite 140	Building 100 Interior, Suite 140
Sample Type	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air
Date Sampled	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019	7/19/2018 to 7/20/2018	12/17/2018 to 12/18/2018	7/19/2018 to 7/20/2018	12/17/2018 to 12/18/2018	5/2/2019 to 5/3/2019	8/8/2019 to 8/9/2019
Air-Phase Petroleum Hydrocarbon Target Analytes - APH ($\mu\text{g}/\text{m}^3$)									
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	0.80	<0.60	0.63	<0.60	0.84	<0.60	0.96	<0.60	0.64
Toluene	23	54	21	14	25	11	27	45	23
Ethylbenzene	11	2.3	2.3	34	11	36	12	4.9	1.8
m- & p- Xylenes	57	15	8.6	240	63	250	67	36	8.0
o-Xylenes	20	4.8	3.7	80	21	82	23	11	3.2
Naphthalene	<1.1	2.5	1.4	3.1	1.6	3.2	1.8	1.5	1.8
Air-Phase Petroleum Hydrocarbons - APH ($\mu\text{g}/\text{m}^3$)									
C ₂ -C ₆ Aliphatic Hydrocarbons	320	340	210	27	300	<10	310	810	210
C ₇ -C ₁₁ Aliphatic Hydrocarbons	1200	360	420	260	1200	280	1100	250	270
C ₉ -C ₁₀ Aromatic Hydrocarbons	140	84	96	60	24	61	140	60	62

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in $\mu\text{g}/\text{m}^3$

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air § 2017. Values preceding "HII" indicate compounds that are not considered to

levels are based on noncarcinogenic risk. "NA" indicates compounds with no from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion WSCP# 16-435, October 2016.

TABLE 2

Indoor Air Chemical Analysis Results - Building 1C
 Cummings Center, Beverly, MA
 2018-2019

Sample ID	Maximum Concentration	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Building 100 Interior, Suite 140 A		
Sample Type	Indoor Air		
Date Sampled	July 2018 - August 2019		
Volatile Organic Compounds (µg/m³)			
1,1,1-trichloroethane	3.59	520 (HI)	3
1,1,1,2-tetrachloroethane	Not Detected	0.38	
1,1,2,2-tetrachloroethane	Not Detected	0.048	0.04
1,1,2-trichloroethane	Not Detected	0.18	0.15
1,1-dichloroethane	Not Detected	1.8	0.8
1,1-dichloroethene	Not Detected	21 (HI)	0.8
1,2,4-trichlorobenzene	Not Detected	0.21 (HI)	0.4
1,2,4-trimethylbenzene	62.4	6.3 (HI)	
1,2-dibromoethane	Not Detected	0.0047	0.0078
1,2-dichlorobenzene	Not Detected	21 (HI)	0.72
1,2-dichloroethane	0.453	0.11	0.09
1,2-dichloropropane	Not Detected	0.76	0.12
1,3,5-trimethylbenzene	19.4	6.3 (HI)	
1,3-butadiene	0.128	0.094	
1,3-dichlorobenzene	Not Detected	21(HI)	0.6
1,4-dichlorobenzene	Not Detected	0.26	0.5
1,4-dioxane	Not Detected	0.56	0.47
2,2,4-trimethylpentane	Not Detected	N/A	
2-butanone	8.55	520(HI)	12
2-hexanone	0.828	3.1(HI)	
3-chloropropene	Not Detected	0.47	
4-Ethyltoluene	15.5	N/A	
Acetone	599	3,200(HI)	91
Benzene	0.847	0.36	2.3
Benzyl Chloride	Not Detected	0.057	
Bromodichloromethane	0.234	0.076	0.13
Bromoform	Not Detected	2.6	2.1
Bromomethane	Not Detected	0.52(HI)	0.6
Carbon disulfide	0.74	73 (HI)	
Carbon tetrachloride	0.554	0.47	0.54
Chlorobenzene	Not Detected	5.2 (HI)	2.3
Chloroethane	14.5	1,000 (HI)	
Chloroform	7.47	0.12	1.9
Chlormethane	1.37	9.4 (HI)	
Cis-1,2-dichloroethene	Not Detected	N/A	0.8
Cis-1,3-dichloropropene	Not Detected	0.7	0.58
Cyclohexane	1.41	100 (HI)	
Dibromochloromethane	Not Detected	N/A	0.097
Dichlorodifluoromethane	7.57	10 (HI)	
Ethanol	456	N/A	
Ethyl acetate	31.4	7.3 (HI)	
Ethylbenzene	40.8	1.1	7.4
Freon-113	0.521	520 (HI)	
Freon-114	Not Detected	N/A	
Hexachlorobutadiene	Not Detected	0.13	0.11
Hexane	4.12	73 (HI)	
Isopropyl alcohol	713	21 (HI)	
Methylene chloride	3.36	100	11
MBK	6.35	310 (HI)	2.2
MTBE	Not Detected	11	39
M+p-xylene	273	10 (HI)	20
n-heptane	20.5	42 (HI)	
Naphthalene	3.27	0.083	0.6
o-xylene	90.8	10 (HI)	20
Propylene	5.52	310 (HI)	
Styrene	496	100 (HI)	1.4
Tetrachloroethylene	4.65	11	1.4
Tetrahydrofuran	6.05	210 (HI)	
Toluene	78.4	520 (HI)	54
Trans-1,2-dichloroethene	0.139	N/A	0.8
Trans-1,3-dichloropropene	Not Detected	0.7	0.58
Trichloroethene	0.973	0.48	0.4
Trichlorofluoromethane	3.87	N/A	
Vinyl acetate	Not Detected	21 (HI)	
Vinyl bromide	Not Detected	0.088	
Vinyl chloride	Not Detected	0.17	0.27

TABLE 2

Indoor Air Chemical Analysis Results - Building 1C
 Cummings Center, Beverly, MA
 2018-2019

Sample ID	Maximum Concentration	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Building 100 Interior, Suite 140		
Sample Type	Indoor Air		
Date Sampled	July 2018 - August 2019		
Air-Phase Petroleum Hydrocarbon Target Analytes - APH ($\mu\text{g}/\text{m}^3$)			
1,3-Butadiene	Not Detected	0.094	
Methyl-tert-butyl ether	Not Detected	11	39
Benzene	0.96	0.36	2.3
Toluene	74	520 (HI)	54
Ethylbenzene	36	1.1	7.4
m- & p- Xylenes	250	10 (HI)	20
o-Xylenes	82	10 (HI)	20
Naphthalene	3.2	0.083	0.6
Air-Phase Petroleum Hydrocarbons - APH ($\mu\text{g}/\text{m}^3$)			
C ₅ -C ₈ Aliphatic Hydrocarbons	810	N/A	58
C ₉ -C ₁₁ Aliphatic Hydrocarbons	1500	N/A	68
C ₉ -C ₁₀ Aromatic Hydrocarbons	180	N/A	10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in $\mu\text{g}/\text{m}^3$

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air § 2017. Values preceding "(HI)" indicate compounds that are not considered to levels are based on noncarcinogenic risk. "N/A" indicates compounds with no from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Policy WSC# 16-435, October 2016.

TABLE 3

Indoor Air Chemical Analysis Results - Outdoor Control Samples

Cummings Center, Beverly, MA

2012 to 2019

Sample ID	NEPD	NEPD	WPD	Outdoor Control	Outdoor Control	OUTDOOR CONTROL 1	OUTDOOR CONTROL 2	OUTDOOR CONTROL
Sample Location	Roof Exterior of Building 250 (Northeast Parking Deck)	Roof Exterior of Building 250 (Northeast Parking Deck)	Roof Exterior of Building 950 (West Parking Deck)	Building 100 Bright Horizons Outdoor Playground	Building 100 Bright Horizons Outdoor Playground	Outside of Building 100 Suite S-149-J	Outside of Building 600 Suite S-171-X	Outside of Building 100 Suite S-135-C
Sample Type	Air	Air	Air	Air	Air	Air	Air	Air
Date Sampled	9/20/2012 to 9/21/2012	2/4/2013 to 2/5/2013	2/7/2014 to 2/8/2014	3/6/2015 to 3/8/2015	8/7/2015 to 8/8/2015	4/28/2018 TO 4/29/2018	4/28/2018 to 4/29/2018	5/2/2019 to 5/3/2019
Volatile Organic Compounds (µg/m³)								
1,1,1-trichloroethane	<0.109	<0.109	<0.109	<0.038	<0.127	<0.033	<0.033	<0.033
1,1,1,2-tetrachloroethane	<0.137	<0.137	<0.137	<0.048	<0.160	<0.048	<0.048	<0.048
1,1,2,2-tetrachloroethane	<0.137	<0.137	<0.137	<0.048	<0.160	<0.048	<0.048	<0.048
1,1,2-trichloroethane	<0.109	<0.109	<0.109	<0.049	<0.164	<0.022	<0.022	<0.022
1,1-dichloroethane	<0.081	<0.081	<0.081	<0.028	<0.094	<0.028	<0.028	<0.028
1,1-dichloroethene	<0.079	<0.079	<0.079	<0.028	<0.092	<0.028	<0.028	<0.028
1,2,4-trichlorobenzene	<0.371	<0.371	<0.371	<0.074	<0.247	0.082 J	<0.074	<0.074
1,2,4-trimethylbenzene	0.177	<0.098	<0.098	0.084 J	1.03	0.079 J	0.079 J	<0.034
1,2-dibromoethane	<0.154	<0.154	<0.154	<0.062	<0.205	<0.062	<0.062	<0.062
1,2-dichlorobenzene	<0.12	<0.12	<0.120	<0.042	<0.140	0.132	<0.036	0.114 J
1,2-dichloroethane	<0.081	<0.081	<0.081	0.061 J	<0.108	0.069 J	0.081	0.093
1,2-dichloropropane	<0.092	<0.092	<0.092	<0.028	<0.092	<0.037	<0.037	<0.037
1,3,5-trimethylbenzene	<0.098	<0.098	<0.098	<0.025	0.328	<0.025	<0.025	0.044 J
1,3-butadiene	<0.044	<0.044	0.053	0.038	0.052 J	0.027 J	0.031 J	0.018 J
1,3-dichlorobenzene	<0.12	<0.12	<0.120	<0.042	0.221 J	<0.036	<0.036	0.078 J
1,4-dichlorobenzene	<0.12	<0.12	<0.120	<0.048	<0.161	0.054 J	<0.048	0.096 J
1,4-dioxane	NA	<0.721	<0.721	<0.281	<0.937	<0.051	<0.051	0.079 J
2,2,4-trimethylpentane	<0.934	<0.934	<0.934	<0.308	<1.03	0.135 J	0.140 J	<0.126
2-butanone	0.696	0.619	<0.590	0.434 J	0.914 J	0.357 J	0.498 J	0.404 J
2-hexanone	<0.82	<0.82	<0.820	<0.248	<0.824	<0.123	<0.123	<0.123
3-chloropropene	NA	<0.626	<0.626	<0.254	<0.848	<0.063	<0.063	<0.063
4-Ethyltoluene	<0.983	<0.983	<0.983	<0.381	<1.27	<0.049	<0.049	<0.049
Acetone	6.03	3.8	4.58	5.56	11.6	8.79	8.58	4.66
Benzene	<0.319	0.486	0.617	0.703	0.351 J	0.268 J	0.291 J	0.278 J
Benzyl Chloride	NA	<1.04	<1.04	<0.334	<1.11	<0.192	<0.192	<0.192
Bromodichloromethane	<0.134	<0.134	<0.134	<0.054	<0.179	<0.054	<0.054	<0.054
Bromoform	<0.207	<0.207	<0.207	<0.155	<0.517	<0.155	<0.155	<0.155
Bromomethane	<0.078	<0.078	<0.078	<0.031	<0.104	<0.031	0.039 J	<0.031
Carbon disulfide	<0.623	<0.623	<0.623	<0.107	<0.358	<0.196	<0.196	0.302 J
Carbon tetrachloride	0.308	0.547	0.604	0.434	0.398 J	0.491	0.541	0.478
Chlorobenzene	<0.092	<0.092	<0.092	<0.037	<0.123	<0.032	<0.032	<0.032
Chloroethane	<0.053	<0.053	<0.053	<0.019	0.167 J	<0.045	<0.045	<0.045
Chloroform	0.132	<0.098	<0.098	0.073 J	0.147 J	0.112	0.107	0.088 J
Chloromethane	<1.03	<1.03	1.06	1.09	1.261	1.07	1.18	1.13
Cis-1,2-dichloroethene	<0.079	<0.079	<0.079	<0.026	<0.087	<0.028	<0.028	<0.028
Cis-1,3-dichloropropene	<0.091	<0.091	<0.091	<0.036	<0.121	<0.027	<0.027	<0.027
Cyclohexane	<0.688	<0.688	0.885	<0.226	5.47	<0.103	<0.103	<0.103
Dibromochloromethane	<0.17	<0.17	<0.170	<0.068	<0.227	<0.068	<0.068	<0.068
Dichlorodifluoromethane	0.979	2.23	2.04	1.9	1.94 J	2.06	1.93	1.46
Ethanol	<4.71	<4.71	<4.71	5.58	14.7 J	5.18 J	3.52 J	10.1
Ethyl acetate	<1.80	<1.80	<1.80	<0.472	<1.57	<0.137	<0.137	<0.137
Ethylbenzene	0.165	0.087	0.13	0.122	0.552	0.070 J	0.070 J	0.074 J
Freon-113	0.529	0.483	0.552	0.529	0.973 J	0.529	0.874	0.468
Freon-114	<0.349	<0.349	<0.349	0.098 J	0.117 J	0.105 J	0.112 J	0.091 J
Hexachlorobutadiene	<0.533	<0.533	<0.533	<0.117	<0.391	<0.075	<0.075	<0.075
Hexane	2.3	2.35	<0.705	0.250 J	<0.610	0.162 J	0.226 J	0.722
Isopropyl alcohol	<1.23	<1.23	<1.23	<0.280	1.38 J	0.912 J	0.828 J	0.705 J
Methylene chloride	7.85	<4.86	<3.47	<0.869	6.15	<0.869	<0.869	2.39
MBK	<0.82	<0.82	<0.820	<0.249	<0.828	<0.021	<0.021	<0.021
MTBE	<0.072	<0.072	<0.072	<0.014	<0.048	<0.022	<0.022	<0.022
M+p-xylene	0.491	0.235	0.339	0.313	1.48	0.178	0.187	0.182
o-heptane	NA	<0.820	<0.820	<0.227	<0.754	<0.131	<0.131	<0.131
Naphthalene	NA	<0.262	<0.262	<0.063	0.454	0.121 J	0.142 J	0.199 J
o-xylene	0.182	0.096	0.13	0.117	0.595	0.074 J	0.074 J	0.083 J
Propylene	<0.86	<0.861	<0.861	0.492 J	<0.534	0.133 J	0.138 J	0.177 J
Sterene	<0.085	<0.085	<0.085	<0.034	0.524	<0.030	<0.030	<0.030
Tetrachloroethylene	0.278	<0.136	<0.136	0.081 J	<0.181	0.149	0.129 J	0.061 J
Tetrahydrofuran	<0.59	<0.59	<0.590	<0.183	0.104 J	<0.109	0.156 J	0.198 J
Toluene	1.07	0.531	1.04	0.682	5.46	0.377	0.377	0.614
Trans-1,2-dichloroethene	<0.079	<0.079	<0.079	<0.024	<0.079	<0.024	<0.024	<0.024
Trans-1,3-dichloropropene	<0.091	<0.091	<0.091	<0.036	<0.121	<0.036	<0.036	<0.036
Trichloroethene	<0.107	<0.107	<0.107	<0.038	<0.125	0.043 J	<0.038	0.059 J
Trichlorofluoromethane	1.09	1.21	1.39	1.19	1.65	1.31	1.48	1.14
Vinyl acetate	NA	<0.704	<0.704	<0.200	<0.665	<0.095	<0.095	<0.095
Vinyl bromide	NA	<0.874	<0.874	<0.306	<1.02	<0.101	<0.101	<0.101
Vinyl chloride	<0.051	<0.051	<0.051	<0.018	<0.060	<0.015	<0.015	<0.015

TABLE 3

Indoor Air Chemical Analysis Results - Outdoor Control Samples

Cummings Center, Beverly, MA

2012 to 2019

Sample ID	NEPD	NEPD	WPD	Outdoor Control	Outdoor Control	OUTDOOR CONTROL 1	OUTDOOR CONTROL 2	OUTDOOR CONTROL
Sample Location	Roof Exterior of Building 250 (Northeast Parking Deck)	Roof Exterior of Building 250 (Northeast Parking Deck)	Roof Exterior of Building 950 (West Parking Deck)	Building 100 Bright Horizons Outdoor Playground	Building 100 Bright Horizons Outdoor Playground	Outside of Building 100 Suite S-149-J	Outside of Building 600 Suite S-171-X	Outside of Building 100 Suite S-135-C
Sample Type	Air	Air	Air	Air	Air	Air	Air	Air
Date Sampled	9/20/2012 to 9/21/2012	2/4/2013 to 2/5/2013	2/7/2014 to 2/8/2014	3/6/2015 to 3/8/2015	8/7/2015 to 8/8/2015	4/28/2018 TO 4/29/2018	4/28/2018 to 4/29/2018	5/2/2019 to 5/3/2019
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<2.0	<2.0	<2.0	<2.0	<2.0	<0.70	<0.70	<0.70
Benzene	<2.0	<2.0	<2.0	<2.0	<2.0	<0.60	<0.60	<0.60
Toluene	<2.0	<2.0	<2.0	<2.0	<2.0	<0.90	<0.90	<0.90
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<0.90	<0.90	<0.90
m- & p- Xylenes	<4.0	<4.0	<4.0	<4.0	<4.0	<0.90	<0.90	<0.90
o-Xylenes	<2.0	<2.0	<2.0	<2.0	<2.0	<0.90	<0.90	<0.90
Naphthalene	<2.0	<2.0	<2.0	<2.0	<2.0	<1.1	<1.1	<1.1
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	<12	<12	<12	<12	40	<10	<10	<10
C ₉ -C ₁₂ Aliphatic Hydrocarbons	<14	<14	<14	<14	70	<10	<10	<10
C ₆ -C ₁₀ Aromatic Hydrocarbons	<10	<10	<10	<10	<33	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Supporting Table, November

2017. Values preceding "(H)" indicate compounds that are not considered to be carcinogenic and risk

levels are based on noncarcinogenic risk. "N/A" indicates compounds with no risk information available

from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Guidance, MassDEP

Policy WSC# 16-435, October 2016.

TABLE 3

Indoor Air Chemical Analysis Results - Outdoor C
Cummings Center, Beverly, MA
2012 to 2019

Sample ID	OUTDOOR CONTROL	Maximum Concentration	Minimum Concentration	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Outside of Building 100 Suite S-135-C	Outdoor Control	Outdoor Control		
Sample Type	Air	Air	Air		
Date Sampled	8/8/2019 to 8/9/2019	2012-2019	2012-2019		
Volatile Organic Compounds (µg/m³)					
1,1,1-trichloroethane	<0.033	Not Detected	Not Detected	520 (HI)	3
1,1,1,2-tetrachloroethane	<0.041	Not Detected	Not Detected	0.38	
1,1,2,2-tetrachloroethane	<0.048	Not Detected	Not Detected	0.048	0.04
1,1,2-trichloroethane	<0.022	Not Detected	Not Detected	0.18	0.15
1,1-dichloroethane	<0.028	Not Detected	Not Detected	1.8	0.8
1,1-dichloroethene	<0.028	Not Detected	Not Detected	21 (HI)	0.8
1,2,4-trichlorobenzene	<0.074	0.082 J	Not Detected	0.21 (HI)	0.4
1,2,4-trimethylbenzene	0.329	1.03	Not Detected	6.3 (HI)	
1,2-dibromoethane	<0.062	Not Detected	Not Detected	0.0047	0.0078
1,2-dichlorobenzene	<0.036	0.132	Not Detected	21 (HI)	0.72
1,2-dichloroethane	0.069 J	0.093	Not Detected	0.11	0.09
1,2-dichloropropane	<0.037	Not Detected	Not Detected	0.76	0.12
1,3,5-trimethylbenzene	0.084 J	0.328	Not Detected	6.3 (HI)	
1,3-butadiene	0.044	0.053	0.027 J	0.094	
1,3-dichlorobenzene	<0.036	0.078 J	Not Detected	21 (HI)	0.6
1,4-dichlorobenzene	<0.048	0.096 J	Not Detected	0.26	0.5
1,4-dioxane	0.472 J	0.079 J	Not Detected	0.56	0.47
2,2,4-trimethylpentane	<0.126	0.140 J	Not Detected	N/A	
2-butanone	0.726	0.726	0.357 J	520(HI)	12
2-hexanone	<0.123	Not Detected	Not Detected	3.1(HI)	
3-chloropropene	<0.063	Not Detected	Not Detected	0.47	
4-Ethyltoluene	0.079 J	Not Detected	Not Detected	N/A	
Acetone	7.15	11.6	3.80	3,200(HI)	91
Benzene	0.565	0.703	0.268 J	0.36	2.3
Benzyl Chloride	<0.192	Not Detected	Not Detected	0.057	
Bromodichloromethane	<0.054	Not Detected	Not Detected	0.076	0.13
Bromform	<0.155	Not Detected	Not Detected	2.6	2.1
Bromomethane	0.062 J	0.062 J	Not Detected	0.52(HI)	0.6
Carbon disulfide	0.585 J	0.302 J	Not Detected	73 (HI)	
Carbon tetrachloride	0.566	0.604	0.308	0.47	0.54
Chlorobenzene	<0.032	Not Detected	Not Detected	5.2 (HI)	2.3
Chloroethane	<0.045	Not Detected	Not Detected	1,000 (HI)	
Chloroform	0.132	0.132	0.073 J	0.12	1.9
Chloromethane	1.00	1.18	Not Detected	9.4 (HI)	
Cis-1,2-dichloroethene	<0.028	Not Detected	Not Detected	N/A	0.8
Cis-1,3-dichloropropene	<0.027	Not Detected	Not Detected	0.7	0.58
Cyclohexane	0.396 J	5.47	Not Detected	100 (HI)	
Dibromochloromethane	<0.068	Not Detected	Not Detected	N/A	0.097
Dichlorodifluoromethane	2.29	2.29	0.979	10 (HI)	
Ethanol	7.59 J	10.10	3.52 J	N/A	
Ethyl acetate	0.227 J	Not Detected	Not Detected	7.3 (HI)	
Ethylbenzene	0.226	0.552	0.070 J	1.1	7.4
Freon-113	0.483	0.874	0.468	520 (HI)	
Freon-114	0.098 J	0.117 J	Not Detected	N/A	
Hexachlorobutadiene	<0.075	Not Detected	Not Detected	0.13	0.11
Hexane	0.416 J	2.35	0.162 J	73 (HI)	
Isopropyl alcohol	1.82	1.82	1.82	21 (HI)	
Methylene chloride	1.47 J	7.85	Not Detected	100	11
MBK	0.270 J	Not Detected	Not Detected	310 (HI)	2.2
MTBE	<0.022	Not Detected	Not Detected	11	39
M+p-xylene	0.669	1.48	0.178	10 (HI)	20
n-heptane	0.332 J	Not Detected	Not Detected	42 (HI)	
Naphthalene	0.231 J	0.454	0.122 J	0.083	0.6
o-xylene	0.269	0.595	0.074 J	10 (HI)	20
Propylene	0.478 J	0.492 J	Not Detected	310 (HI)	
Styrene	0.294	0.524	Not Detected	100 (HI)	1.4
Tetrachloroethylene	0.088 J	0.278	0.081 J	11	1.4
Tetrahydrofuran	0.891 J	0.891 J	Not Detected	210 (HI)	
Toluene	1.22	5.46	0.377	520 (HI)	54
Trans-1,2-dichloroethene	<0.024	Not Detected	Not Detected	N/A	0.8
Trans-1,3-dichloropropene	<0.036	Not Detected	Not Detected	0.7	0.58
Trichloroethene	<0.038	0.043 J	Not Detected	0.48	0.4
Trichlorofluoromethane	1.09	1.65	1.09	N/A	
Vinyl acetate	<0.095	Not Detected	Not Detected	21 (HI)	
Vinyl bromide	<0.101	Not Detected	Not Detected	0.088	
Vinyl chloride	<0.015	Not Detected	Not Detected	0.17	0.27

TABLE 3

Indoor Air Chemical Analysis Results - Outdoor C
Cummings Center, Beverly, MA
2012 to 2019

Sample ID	OUTDOOR CONTROL	Maximum Concentration	Minimum Concentration	EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Sample Location	Outside of Building 100 Suite S-135-C	Outdoor Control	Outdoor Control		
Sample Type	Air	Air	Air		
Date Sampled	8/8/2019 to 8/9/2019	2012-2019	2012-2019		
Air-Phase Petroleum Hydrocarbon Target Analytes - APH ($\mu\text{g}/\text{m}^3$)					
1,3-Butadiene	<0.50	Not Detected	Not Detected	0.094	
Methyl-tert-butyl ether	<0.70	Not Detected	Not Detected	11	39
Benzene	<0.60	Not Detected	Not Detected	0.36	2.3
Toluene	1.3	1.30	1.30	520 (HI)	54
Ethylbenzene	<0.90	Not Detected	Not Detected	1.1	7.4
m- & p- Xylenes	<0.90	Not Detected	Not Detected	10 (HI)	20
o-Xylenes	<0.90	Not Detected	Not Detected	10 (HI)	20
Naphthalene	<1.1	Not Detected	Not Detected	0.083	0.6
Air-Phase Petroleum Hydrocarbons - APH ($\mu\text{g}/\text{m}^3$)					
C ₅ -C ₈ Aliphatic Hydrocarbons	<10	40	Not Detected	N/A	58
C ₉ -C ₁₂ Aliphatic Hydrocarbons	<10	70	Not Detected	N/A	68
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	Not Detected	Not Detected	N/A	10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in $\mu\text{g}/\text{m}^3$

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Site

2017. Values preceding "(HI)" indicate compounds that are not considered to levels are based on noncarcinogenic risk. "N/A" indicates compounds with no from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrus

Policy WSC# 16-435, October 2016.

TABLE 4

Indoor Air Chemical Analysis Results - Elliott Landing

Cummings Center, Beverly, MA

2019

Sample ID	Elliott Landing-1	Elliott Landing-2	Elliott Landing-3	Duplicate of Elliott Landing-3	Maximum Concentration		
Sample Location	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing		
Sample Type	Indoor Air	Indoor Air	Indoor Air	Indoor Air		EPA Target Risk: Carcinogenic = 1E-06 or HI = 0.1	MassDEP Residential Threshold Values
Date Sampled	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019			
Volatile Organic Compounds (µg/m³)							
1,1,1-trichloroethane	<0.033	<0.033	<0.033	<0.033	Not Detected	520 (HI)	3
1,1,2-tetrachloroethane	<0.041	<0.041	<0.041	<0.041	Not Detected	0.38	
1,1,2,2-tetrachloroethane	<0.048	<0.048	<0.048	<0.048	Not Detected	0.048	0.04
1,1,2-trichloroethane	<0.022	<0.022	<0.022	<0.022	Not Detected	0.18	0.15
1,1-dichloroethane	<0.028	<0.028	<0.028	<0.028	Not Detected	1.8	0.8
1,1-dichloroethene	<0.028	<0.028	<0.028	<0.028	Not Detected	21 (HI)	0.8
1,2,4-trichlorobenzene	<0.074	<0.074	<0.074	<0.074	Not Detected	0.21 (HI)	0.4
1,2,4-trimethylbenzene	0.251	0.393	0.442	0.354	0.442	6.3 (HI)	
1,2-dibromoethane	<0.062	<0.062	<0.062	<0.062	Not Detected	0.0047	0.0078
1,2-dichlorobenzene	<0.036	<0.036	<0.036	<0.036	Not Detected	21 (HI)	0.72
1,2-dichloroethane	0.101	0.117	0.324	0.348	0.348	0.11	0.09
1,2-dichloropropane	<0.037	<0.037	<0.037	<0.037	Not Detected	0.76	0.12
1,3,5-trimethylbenzene	0.059 J	0.093 J	0.123	0.098	0.123	6.3 (HI)	
1,3-butadiene	0.027 J	0.062	0.069	0.069	0.069	0.094	
1,3-dichlorobenzene	<0.036	<0.036	<0.036	<0.036	Not Detected	21 (HI)	0.6
1,4-dichlorobenzene	0.084 J	<0.048	<0.048	<0.048	Not Detected	0.26	0.5
1,4-dioxane	<0.051	<0.051	<0.051	<0.051	Not Detected	0.56	0.47
2,2,4-trimethylpentane	0.276 J	0.589 J	0.710 J	0.667 J	Not Detected	N/A	
2-butanone	1.09 J	1.47 J	1.47	1.47	1.47	520(HI)	12
2-hexanone	0.135 J	0.139 J	0.127 J	<0.123	Not Detected	3.1(HI)	
3-chloropropene	<0.063	<0.063	<0.063	<0.063	Not Detected	0.47	
4-Ethyltoluene	<0.049	0.079 J	0.098	0.123	0.123	N/A	
Acetone	17.6	30.6	53.2	48.50	53.2	3,200(HI)	91
Benzene	0.284 J	0.502	0.581	0.553	0.581	0.36	2.3
Benzyl Chloride	<0.192	<0.192	<0.192	<0.192	Not Detected	0.057	
Bromodichloromethane	<0.054	<0.054	<0.054	0.080 J	Not Detected	0.076	0.13
Bromoform	<0.155	<0.155	<0.155	<0.155	Not Detected	2.6	2.1
Bromomethane	0.043 J	<0.031	0.047 J	0.039 J	Not Detected	0.52(HI)	0.6
Carbon disulfide	0.218 J	<0.196	<0.196	<0.196	Not Detected	73 (HI)	
Carbon tetrachloride	0.547	0.535	0.572	0.535	0.572	0.47	0.54
Chlorobenzene	<0.032	<0.032	<0.032	<0.032	Not Detected	5.2 (HI)	2.3
Chloroethane	<0.045	<0.045	<0.045	<0.045	Not Detected	1,000 (HI)	
Chloroform	0.225	0.239	0.259	0.264	0.264	0.12	1.9
Chloromethane	1.07	0.997	1.05	1.03	1.07	9.4 (HI)	
Cis-1,2-dichloroethene	<0.028	<0.028	<0.028	0.040 J	Not Detected	N/A	0.8
Cis-1,3-dichloropropene	<0.027	<0.027	<0.027	<0.027	Not Detected	0.7	0.58
Cyclohexane	0.179 J	0.244 J	0.299 J	0.286 J	Not Detected	100 (HI)	
Dibromochloromethane	<0.068	<0.068	<0.068	<0.068	Not Detected	N/A	0.097
Dichlorodifluoromethane	2.29	2.27	2.31	2.32	2.32	10 (HI)	
Ethanol	76.1	98.4	136	85.9	136	N/A	
Ethyl acetate	2.89	2.00	9.08	5.15	9.08	7.3 (HI)	
Ethylbenzene	0.243	0.460	0.526	0.482	0.526	1.1	7.4
Freon-113	0.506	0.483	0.514	0.506	0.514	520 (HI)	
Freon-114	0.105 J	0.098 J	0.105 J	0.105 J	Not Detected	N/A	
Hexachlorobutadiene	<0.075	<0.075	<0.075	<0.075	Not Detected	0.13	0.11
Hexane	0.359 J	0.486 J	0.592 J	0.747	0.747	73 (HI)	
Isopropyl alcohol	8.90	9.68	15.5	12.3	15.5	21 (HI)	
Methylene chloride	<0.869	<0.869	<0.869	3.39	3.39	100	11
MBIB	0.221 J	0.307 J	0.762 J	0.602 J	Not Detected	310 (HI)	2.2
MTBE	<0.022	<0.022	<0.022	<0.022	Not Detected	11	39
M+p-xylene	0.604	1.06	1.36	1.26	1.36	10 (HI)	20
n-heptane	0.225 J	0.316 J	0.459 J	0.447 J	Not Detected	42 (HI)	
Naphthalene	0.246 J	0.163 J	0.142 J	0.084 J	Not Detected	0.083	0.6
o-xylene	0.269	0.408	0.513	0.473	0.513	10 (HI)	20
Propylene	0.213 J	0.602 J	0.726 J	0.606 J	Not Detected	310 (HI)	
Styrene	0.243	0.502	0.685	0.511	0.685	100 (HI)	1.4
Tetrachloroethylene	0.142	0.122 J	0.170	0.183	0.183	11	1.4
Tetrahydrofuran	0.779 J	0.941 J	1.97	2.00	2.00	210 (HI)	
Toluene	1.16	4.79	2.26	2.18	4.79	520 (HI)	54
Trans-1,2-dichloroethene	<0.024	<0.024	0.052 J	0.067 J	Not Detected	N/A	0.8
Trans-1,3-dichloropropene	<0.036	<0.036	<0.036	<0.036	Not Detected	0.7	0.58
Trichloroethene	0.097 J	<0.038	0.107	0.081 J	0.107	0.48	0.4
Trichlorofluoromethane	1.14	1.18	1.20	1.20	1.20	N/A	
Vinyl acetate	<0.095	<0.095	<0.095	<0.095	Not Detected	21 (HI)	
Vinyl bromide	<0.101	<0.101	<0.101	<0.101	Not Detected	0.088	
Vinyl chloride	<0.015	<0.015	<0.015	<0.015	Not Detected	0.17	0.27

TABLE 4

Indoor Air Chemical Analysis Results - Elliott Landing

Cummings Center, Beverly, MA

2019

Sample ID	Elliott Landing-1	Elliott Landing-2	Elliott Landing-3	Duplicate of Elliott Landing-3	Maximum Concentration		
Sample Location	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing		
Sample Type	Indoor Air	Indoor Air	Indoor Air	Indoor Air			
Date Sampled	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019	8/8/2019 to 8/9/2019			
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)							
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	Not Detected	0.094	
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	Not Detected	11	39
Benzene	<0.60	<0.60	<0.60	<0.60	Not Detected	0.36	2.3
Toluene	1.3	5.2	2.4	2.4	5.2	520 (HI)	54
Ethylbenzene	<0.90	<0.90	<0.90	<0.90	Not Detected	1.1	7.4
m- & p- Xylenes	<0.90	1.1	1.4	1.3	1.4	10 (HI)	20
o-Xylenes	<0.90	<0.90	<0.90	<0.90	Not Detected	10 (HI)	20
Naphthalene	<1.1	<1.1	<1.1	<1.1	Not Detected	0.083	0.6
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)							
C ₅ -C ₈ Aliphatic Hydrocarbons	13	18	24	38	38	N/A	58
C ₉ -C ₁₂ Aliphatic Hydrocarbons	<10	<10	16	20	20	N/A	68
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	<10	<10	<10	Not Detected	N/A	10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

NR - Not Reported

J - estimated concentration quantified below reporting limit

BOLD = Detected above laboratory standards

gray shaded = detected above applicable standard

blue shaded = analytical detection limit above applicable standard

< = not detected above laboratory detection limit shown

EPA Target Risk Levels are from Regional Screening Level Resident Ambient Air Supporting Table, November 2017. Values preceding "(HI)" indicate compounds that are not considered to be carcinogenic and risk levels are based on noncarcinogenic risk. "N/A" indicates compounds with no risk information available from this source.

MassDEP Residential Threshold Values are from Public Draft Review Vapor Intrusion Guidance, MassDEP Policy WSC# 16-435, October 2016.

TABLE 5

Soil Gas Chemical Analysis Results - Building 100 Suite 135-C

Cummings Center, Beverly, MA

2018-2019

Sample ID	SV-4	SV-4	SV-4	Duplicate of SV-4	SV-4	SV-5	Duplicate of SV-5	SV-5
Sample Location	Building 100 Suite S-135-C							
Sample Type	Soil Gas							
Date Sampled	1/14/2018	4/20/2018	5/4/2019	5/4/2019	8/10/2019	1/14/2018	1/14/2018	4/20/2018
Volatile Organic Compounds (µg/m³)								
1,1,1-trichloroethane	3.86	3.25	2.09	2.05	3.02	0.447	0.464	0.469
1,1,1,2-tetrachloroethane	NR	<0.041	<0.041	<0.041	<0.041	NR	NR	<0.041
1,1,2,2-tetrachloroethane	<0.137	<0.137	<0.048	<0.048	<0.048	<0.137	<0.137	<0.137
1,1,2-trichloroethane	<0.109	<0.109	<0.022	<0.022	<0.022	<0.109	<0.109	<0.109
1,1-dichloroethane	<0.081	<0.081	<0.028	<0.028	<0.028	0.105	0.109	0.130
1,1-dichloroethene	<0.079	<0.079	<0.028	<0.028	<0.028	<0.079	<0.079	<0.079
1,2,4-trichlorobenzene	<0.371	<0.371	0.653	<0.074	<0.074	<0.371	0.082	<0.371
1,2,4-trimethylbenzene	1.04	2.81	1.76	2.93	4.68	0.300	0.324	1.92
1,2-dibromoethane	<0.154	<0.154	<0.062	<0.062	<0.062	<0.154	<0.154	<0.154
1,2-dichlorobenzene	<0.120	<0.120	18.0	0.048 J	0.204	<0.120	<0.120	<0.120
1,2-dichloroethane	<0.081	<0.081	0.036 J	<0.020	0.057 J	<0.081	<0.081	<0.081
1,2-dichloropropane	<0.092	<0.092	<0.037	<0.037	<0.037	<0.092	<0.092	<0.092
1,3,5-trimethylbenzene	0.403	0.855	1.18	2.14	1.73	0.074	0.079	0.438
1,3-butadiene	<0.044	<0.044	<0.016	<0.016	<0.016	<0.044	<0.044	<0.044
1,3-dichlorobenzene	<0.120	<0.120	0.806	<0.036	<0.036	<0.120	<0.120	<0.120
1,4-dichlorobenzene	<0.120	0.054	1.82	0.331	<0.048	<0.120	<0.120	0.054
1,4-dioxane	<0.360	<0.360	<0.051	<0.051	<0.051	<0.360	<0.360	<0.360
2,2,4,4-trimethylpentane	<0.934	<0.934	0.126 J	<0.126	0.187 J	<0.934	<0.934	<0.934
2-butanone	5.57	3.19	1.00 J	0.796 J	0.953 J	2.37	1.62	1.24
2-hexanone	0.156	<0.820	<0.123	<0.123	0.172 J	<0.820	<0.820	<0.820
3-chloropropene	<0.626	<0.626	<0.063	<0.063	<0.063	<0.626	<0.626	<0.626
4-Ethyltoluene	NR	0.575	0.398	0.615	1.02	NR	NR	0.447
Acetone	26.4	20.2	6.96	5.68	8.93	9.50	7.51	13.9
Benzene	<0.319	0.303	0.201 J	0.182 J	0.243 J	0.198	<0.319	0.188
Benzyl Chloride	<1.04	<1.04	<0.192	<0.192	<0.192	<1.04	<1.04	<1.04
Bromodichloromethane	<0.134	<0.134	<0.054	<0.054	<0.054	<0.134	<0.134	<0.134
Bromoform	<0.207	<0.207	<0.155	<0.155	<0.155	<0.207	<0.207	<0.207
Bromomethane	<0.078	<0.078	<0.031	<0.031	<0.031	<0.078	<0.078	<0.078
Carbon disulfide	<0.623	<0.623	<0.196	<0.196	0.324 J	0.202	<0.623	<0.623
Carbon tetrachloride	0.315	0.371	0.359	0.365	0.535	0.522	0.478	0.447
Chlorobenzene	<0.461	<0.461	0.078 J	<0.032	<0.032	<0.461	<0.461	<0.461
Chloroethane	0.063	12.2	0.055 J	0.055 J	0.116 J	0.063	0.045	2.32
Chloroform	0.210	0.332	0.225	0.220	0.391	0.142	0.816	0.181
Chloromethane	0.281	0.37	0.353 J	0.407 J	0.386 J	0.357	<0.413	0.339
Cis-1,2-dichloroethene	<0.079	<0.079	<0.028	<0.028	<0.028	<0.079	<0.079	<0.079
Cis-1,3-dichloropropene	<0.091	<0.091	<0.027	<0.027	<0.027	<0.091	<0.091	<0.091
Cyclohexane	<0.688	0.114	<0.103	<0.103	0.244 J	<0.688	<0.688	<0.688
Dibromochloromethane	<0.170	<0.170	<0.068	<0.068	<0.068	<0.170	<0.170	<0.170
Dichlorodifluoromethane	2.00	2.79	1.68	1.82	2.67	2.66	2.02	1.71
Ethanol	5.11	37.7	35.8	24.9	61.8	19.2	8.22	57.8
Ethyl acetate	0.22	0.533	0.202 J	0.166 J	0.541 J	0.202	0.083	0.432
Ethylbenzene	0.343	0.725	0.491	0.434	0.743	0.117	0.109	0.456
Freon-113	0.621	0.575	0.498	0.521	0.537	0.690	0.621	0.583
Freon-114	<0.349	0.098	0.098 J	0.105 J	0.112 J	<0.349	<0.349	0.105
Hexachlorobutadiene	<0.533	<0.533	<0.075	<0.075	<0.075	<0.533	<0.533	<0.533
Hexane	<0.705	0.152	0.180 J	0.317 J	0.250 J	<0.705	<0.705	<0.705
Isopropyl alcohol	3.76	17.1	9.19	7.01	43.8	7.82	4.84	8.73
Methylene chloride	<1.74	1.93	<0.869	1.65 J	<0.869	<1.74	<1.74	1.39
MBK	<2.05	0.262	0.254 J	0.193 J	0.307 J	<2.05	<2.05	<2.05
MTBE	<0.721	<0.721	<0.022	<0.022	<0.022	<0.721	<0.721	<0.721
M+p-xylene	0.986	2.87	1.27	1.19	2.74	0.365	0.382	2.36
n-heptane	<0.820	0.291	0.246 J	0.205 J	0.504 J	<0.820	<0.820	0.234
Naphthalene	0.467	1.16	0.844	1.96	9.60	0.807	0.666	1.06
o-xylene	0.586	1.48	0.751	0.67	1.42	0.143	0.148	0.925
Propylene	0.059	0.074	0.134 J	0.132 J	0.172 J	<0.861	<0.861	<0.861
Styrene	1.39	1.14	0.630	0.434	0.285	0.984	0.988	1.05
Tetrachloroethylene	0.339	0.495	0.617	0.420	5.55	0.583	0.848	0.705
Tetrahydrofuran	0.239	0.687	1.68	3.89	0.775 J	0.159	0.33	2.34
Toluene	1.11	1.26	0.923	0.984	1.20	0.716	0.550	0.769
Trans-1,2-dichloroethene	<0.079	<0.079	<0.024	<0.024	<0.024	<0.079	<0.079	<0.079
Trans-1,3-dichloropropene	<0.091	<0.091	<0.036	<0.036	<0.036	<0.091	<0.091	<0.091
1,1-chloroethene	0.081	0.177	0.269	0.242	1.56	0.102	0.129	0.150
Trichlorofluoromethane	3.75	3.12	2.09	2.07	2.85	1.75	1.71	1.81
Vinyl acetate	<0.704	<0.704	<0.095	<0.095	<0.095	<0.704	<0.704	<0.704
Vinyl bromide	<0.874	<0.874	<0.101	<0.101	<0.101	<0.874	<0.874	<0.874
Vinyl chloride	<0.051	<0.051	<0.015	<0.015	<0.015	<0.051	<0.051	<0.051

TABLE 5

Soil Gas Chemical Analysis Results - Building 100 Suite 135-C

Cummings Center, Beverly, MA

2018-2019

Sample ID	SV-4	SV-4	SV-4	Duplicate of SV-4	SV-4	SV-5	Duplicate of SV-5	SV-5
Sample Location	Building 100 Suite S-135-C							
Sample Type	Soil Gas							
Date Sampled	1/14/2018	4/20/2018	5/4/2019	5/4/2019	8/10/2019	1/14/2018	1/14/2018	4/20/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Toluene	1.1	1.2	<0.90	0.93	1.3	<0.90	<0.90	<0.90
Ethylbenzene	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90
m- & p- Xylenes	0.97	2.8	1.2	1.1	2.8	<0.90	<0.90	2.3
o-Xylenes	<0.90	1.5	<0.90	<0.90	1.4	<0.90	<0.90	0.96
Naphthalene	<1.1	1.3	<1.1	1.9	10	<1.1	<1.1	1.2
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	39	28	<10	<10	19	40	21	17
C ₉ -C ₁₂ Aliphatic Hydrocarbons	130	600	94	87	67	200	220	660
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	13	14	27	16	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

J - estimated concentration quantified below reporting limit

E - estimated

NR - Not Reported

BOLD = Detected above laboratory standards

gray shaded = detected above applicable screening value

blue shaded = analytical detection limit above applicable screening value

< = not detected above laboratory detection limit shown

MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, MassDEP

Policy WSC# 16-435, October 2016.

TABLE 5

Soil Gas Chemical Analysis Results - Building 100

Cummings Center, Beverly, MA

2018-2019

Sample ID	SV-5	SV-5	Duplicate of SV-5	SV-6	SV-6	SV-6	SV-6	SV-7
Sample Location	Building 100 Suite S-135-C							
Sample Type	Soil Gas							
Date Sampled	5/4/2019	8/10/2019	8/10/2019	1/14/2018	4/20/2018	5/4/2019	8/10/2019	1/14/2018
Volatile Organic Compounds (µg/m³)								
1,1,1-trichloroethane	0.409	1.32	1.18	16.4	7.69	5.21	4.15	1.93
1,1,1,2-tetrachloroethane	<0.041	<0.041	<0.041	NR	<0.041	<0.041	<0.041	NR
1,1,2,2-tetrachloroethane	<0.048	<0.048	<0.048	<0.137	<0.137	<0.048	<0.048	<0.137
1,1,2-trichloroethane	<0.022	<0.022	<0.022	<0.109	<0.109	<0.022	<0.022	<0.109
1,1-dichloroethane	0.130	0.174	0.215	1.30	0.899	0.502	0.465	0.882
1,1-dichloroethene	<0.028	<0.028	<0.028	<0.079	<0.079	<0.028	<0.028	<0.079
1,2,4-trichlorobenzene	<0.074	<0.074	<0.074	<0.371	<0.371	<0.074	<0.074	<0.371
1,2,4-trimethylbenzene	0.551	1.05	0.909	3.11	5.26	8.80	8.01	0.290
1,2-dibromoethane	<0.062	<0.062	<0.062	<0.154	<0.154	<0.062	<0.062	<0.154
1,2-dichlorobenzene	0.090 J	0.463	0.313	<0.120	<0.120	0.108 J	<0.036	<0.120
1,2-dichloroethane	<0.020	<0.020	<0.020	0.105	0.093	0.223	0.174	<0.081
1,2-dichloropropane	<0.037	<0.037	<0.037	<0.092	<0.092	0.051 J	<0.092	<0.092
1,3,5-trimethylbenzene	0.128	0.261	0.202	2.67	5.36	9.98	5.21	0.074
1,3-butadiene	<0.016	<0.016	<0.016	0.033	0.040	0.038 J	0.051	<0.044
1,3-dichlorobenzene	<0.036	0.192	<0.036	<0.120	<0.120	<0.036	<0.036	<0.120
1,4-dichlorobenzene	<0.048	0.234	0.096 J	0.186	0.337	0.709	0.830	<0.120
1,4-dioxane	<0.051	0.159 J	<0.051	<0.360	<0.360	0.083 J	0.180 J	<0.360
2,2,4,4-trimethylpentane	<0.126	0.140 J	0.126 J	<0.934	<0.934	<0.126	0.481 J	<0.934
2-butanone	0.428 J	1.20	1.30 J	4.60	2.95	2.07	3.57	2.47
2-hexanone	<0.123	<0.123	<0.123	0.902	0.623	0.434 J	0.729 J	<0.820
3-chloropropene	<0.063	<0.063	<0.063	<0.626	<0.626	<0.063	<0.063	<0.626
4-Ethyltoluene	0.108	0.231	0.187	NR	1.63	2.67	1.67	NR
Acetone	3.5	10.3	10.6	19.7	21.6	14.0	39.4	31.8
Benzene	0.080 J	1.32	1.490	1.11	0.853	1.68	1.75	0.345
Benzyl Chloride	<0.192	<0.192	<0.192	<1.04	<1.04	<0.192	<0.192	<1.04
Bromodichloromethane	<0.054	<0.054	<0.054	<0.134	<0.134	<0.054	<0.054	<0.134
Bromoform	<0.155	<0.155	<0.155	<0.207	<0.207	<0.155	<0.155	<0.207
Bromomethane	<0.031	<0.031	<0.031	0.039	<0.078	0.035 J	<0.031	<0.078
Carbon disulfide	1.02	0.520 J	3.92	0.234	0.346	0.975	0.383 J	<0.623
Carbon tetrachloride	0.346	0.384	0.371	4.33	2.03	1.33	1.62	0.472
Chlorobenzene	<0.032	3.38	2.84	0.129	<0.461	0.134 J	4.42	<0.461
Chloroethane	0.063 J	0.092 J	0.095 J	0.103	8.47	0.330	0.264	<0.053
Chloroform	0.186	0.210	0.254	2.74	1.87	1.07	1.21	0.181
Chloromethane	0.178 J	0.204 J	0.237 J	0.820	0.933	0.962	1.02	0.343
Cis-1,2-dichloroethene	<0.028	<0.028	<0.028	0.143	<0.079	0.056 J	0.079	0.151
Cis-1,3-dichloropropene	<0.027	<0.027	<0.027	<0.091	<0.091	<0.027	<0.027	<0.091
Cyclohexane	<0.103	0.382 J	0.241 J	0.22	0.227	0.306 J	0.461 J	<0.688
Dibromochloromethane	<0.068	<0.068	<0.068	<0.170	<0.170	<0.068	<0.068	<0.170
Dichlorodifluoromethane	2.35	2.42	2.31	2.10	1.52	1.86	2.40	2.14
Ethanol	69.2	66.3	61.8	25.8	18.0	88.2	337	21.3
Ethyl acetate	<0.137	0.364 J	0.450 J	0.537	0.559	0.187 J	1.46 J	0.346
Ethylbenzene	0.282	5.13	4.06	1.19	1.58	2.35	8.47	0.226
Freon-113	0.491	0.521	0.521	0.651	0.544	0.498	0.537	0.544
Freon-114	0.098 J	0.105 J	0.126 J	<0.349	0.105	0.098 J	0.105 J	<0.349
Hexachlorobutadiene	<0.075	<0.075	<0.075	<0.533	<0.533	<0.075	<0.075	<0.533
Hexane	<0.116	0.176 J	0.180 J	0.493	0.574	1.15	0.955	<0.705
Isopropyl alcohol	14.2	35.2	33.2	12.8	5.90	20.2	217	9.12
Methylene chloride	<0.869	<0.869	<0.869	<1.74	3.01	1.27 J	1.60 J	<1.74
MBK	<0.021	0.262 J	0.320 J	1.87	1.19	1.14 J	1.07 J	<2.05
MTBE	<0.022	<0.022	<0.022	<0.721	<0.721	<0.022	<0.022	<0.721
M+p-xylene	0.916	25.7	23.0	2.99	4.39	4.52	36.5	0.621
n-heptane	0.275 J	0.377 J	0.348 J	1.18	1.14	2.48	2.89	<0.820
Naphthalene	0.320	1.04	0.944	0.598	1.22	0.787	100	<0.262
o-xylene	0.413	19.8	17.0	1.30	1.89	2.40	24.9	0.278
Propylene	0.065 J	<0.059	0.095 J	0.874	1.29	4.44	1.31	0.076
Styrene	0.596	3.07	2.46	2.29	1.20	0.962	5.53	1.44
Tetrachloroethylene	0.644	2.31	1.80	1.33	1.08	1.07	1.30	1.63
Tetrahydrofuran	0.923 J	5.31	5.10	0.917	0.413	1.74	5.49	0.333
Toluene	0.595	1.39	1.01	11.2	8.25	7.95	3.81	1.33
Trans-1,2-dichloroethene	<0.024	<0.024	<0.024	<0.079	<0.079	0.024 J	<0.079	<0.079
Trans-1,3-dichloropropene	<0.036	<0.036	<0.036	<0.091	0.059	<0.036	<0.036	<0.091
Trichloroethene	0.081 J	0.156	0.118	35.2	13.7	9.94	9.14	2.30
Trichlorofluoromethane	1.31	2.15	1.94	2.42	2.37	1.74	2.83	1.88
Vinyl acetate	<0.095	<0.095	<0.095	<0.704	<0.704	<0.095	<0.095	<0.704
Vinyl bromide	<0.101	<0.101	<0.101	<0.874	<0.874	<0.101	<0.101	<0.874
Vinyl chloride	<0.015	<0.015	<0.015	<0.051	<0.051	0.026 J	0.026 J	<0.051

TABLE 5

Soil Gas Chemical Analysis Results - Building 100

Cummings Center, Beverly, MA

2018-2019

Sample ID	SV-5	SV-5	Duplicate of SV-5	SV-6	SV-6	SV-6	SV-6	SV-7
Sample Location	Building 100 Suite S-135-C							
Sample Type	Soil Gas							
Date Sampled	5/4/2019	8/10/2019	8/10/2019	1/14/2018	4/20/2018	5/4/2019	8/10/2019	1/14/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	<0.60	1.4	1.3	1.2	0.89	1.7	1.8	<0.60
Toluene	<0.90	1.5	1.5	12	8.0	7.4	4.1	1.4
Ethylbenzene	<0.90	5.0	4.7	1.2	1.5	2.1	8.3	<0.90
m- & p- Xylenes	<0.90	26	24	3.0	4.2	4.4	37	<0.90
o-Xylenes	<0.90	20	18	1.4	1.8	2.2	25	<0.90
Naphthalene	<1.1	1.1	<1.1	<1.1	1.4	<1.1	100	<1.1
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₅ -C ₈ Aliphatic Hydrocarbons	<10	38	35	190	88	140	120	67
C ₉ -C ₁₂ Aliphatic Hydrocarbons	35	170	130	330	590	250	190	75
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	25	46	23	38	71	89	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

J - estimated concentration quantified below reporting limit

E - estimated

NR - Not Reported

BOLD = Detected above laboratory standards

gray shaded = detected above applicable screening value

blue shaded = analytical detection limit above applicable screening value

< = not detected above laboratory detection limit shown

MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, Mass

Policy WSC# 16-435, October 2016.

TABLE 5

Soil Gas Chemical Analysis Results - Building 100
Cummings Center, Beverly, MA
2018-2019

Sample ID	SV-7	SV-7	SV-7	Maximum Concentrations	MassDEP Residential Sub-Slab Soil Gas Screening Values
Sample Location	Building 100 Suite S-135-C				
Sample Type	Soil Gas	Soil Gas	Soil Gas	Soil Gas	
Date Sampled	4/20/2018	5/4/2019	8/10/2019		
Volatile Organic Compounds (µg/m³)					
1,1,1-trichloroethane	1.33	0.797	1.66	16.4	210
1,1,1,2-tetrachloroethane	<0.041	<0.041	<0.041	Not Detected	
1,1,2,2-tetrachloroethane	<0.137	<0.048	<0.048	Not Detected	2.8
1,1,2-trichloroethane	<0.109	<0.022	<0.022	Not Detected	10
1,1-dichloroethane	0.526	0.344	0.627	1.3	56
1,1-dichloroethene	<0.079	<0.028	<0.028	Not Detected	56
1,2,4-trichlorobenzene	<0.371	<0.074	<0.074	0.653	28
1,2,4-trimethylbenzene	2.43	0.506	0.477	8.8	
1,2-dibromoethane	<0.154	<0.062	<0.062	Not Detected	0.54
1,2-dichlorobenzene	0.096	<0.036	<0.036	18.0	50
1,2-dichloroethane	0.045	0.105	0.061 J	0.223	6.3
1,2-dichloropropane	<0.092	0.042 J	<0.037	Not Detected	8.6
1,3,5-trimethylbenzene	0.570	0.147	0.157	9.98	
1,3-butadiene	<0.044	0.016 J	<0.016	0.051	
1,3-dichlorobenzene	<0.120	<0.036	<0.036	0.806	42
1,4-dichlorobenzene	0.066	<0.048	<0.048	1.82	35
1,4-dioxane	<0.360	<0.051	<0.051	Not Detected	33
2,2,4-trimethylpentane	<0.934	0.135 J	<0.126	Not Detected	
2-butanone	1.68	1.54	0.900 J	5.57	850
2-hexanone	<0.820	<0.123	0.184 J	0.902	
3-chloropropene	<0.626	<0.063	<0.063	Not Detected	
4-Ethyltoluene	0.585	0.103	0.108	2.67	
Acetone	15.1	14.0	9.4	39.4	6400
Benzene	0.278	0.278 J	0.153 J	1.75	160
Benzyl Chloride	<1.04	<0.192	<0.192	Not Detected	
Bromodichloromethane	<0.134	<0.054	<0.054	Not Detected	9.2
Bromoform	<0.207	<0.155	<0.155	Not Detected	150
Bromomethane	<0.078	<0.031	<0.031	0.039	42
Carbon disulfide	<0.623	<0.196	<0.196	3.92	
Carbon tetrachloride	0.421	0.396	0.359	4.33	38
Chlorobenzene	<0.461	0.065 J	<0.032	4.42	160
Chloroethane	3.75	0.227 J	0.071 J	12.2	
Chloroform	1.07	0.288	0.249	2.74	130
Chloromethane	0.388	0.789	0.268	1.02	
Cis-1,2-dichloroethene	<0.079	<0.028	<0.028	0.151	56
Cis-1,3-dichloropropene	<0.091	<0.027	<0.027	Not Detected	41
Cyclohexane	<0.688	<0.103	0.313 J	0.227	
Dibromochloromethane	<0.170	<0.068	<0.068	Not Detected	6.8
Dichlorodifluoromethane	2.85	1.68	2.19	2.85	
Ethanol	32.8	268	124	337	
Ethyl acetate	0.541	0.555 J	0.447 J	0.559	
Ethylbenzene	0.756	0.274	0.208	8.47	520
Freon-113	0.521	0.491	0.445	0.690	
Freon-114	0.105	0.098 J	0.098 J	0.105	
Hexachlorobutadiene	<0.533	<0.075	<0.075	Not Detected	7.4
Hexane	0.159	0.250 J	0.180 J	1.15	
Isopropyl alcohol	12.6	63.4	61.0	217	
Methylene chloride	2.04	<0.869	<0.869	3.01	770
MBK	0.172	0.254 J	0.291 J	1.87	150
MTBE	<0.721	<0.022	<0.022	Not Detected	2700
M+p-xylene	3.46	0.795	0.708	36.5	1400
n-heptane	0.27	0.447 J	0.299 J	2.89	
Naphthalene	1.25	0.320	1.20	100	42
O-xylene	1.43	0.760	0.291	24.9	1400
Propylene	0.108	0.394 J	0.167 J	4.44	
Styrene	1.57	0.728	0.132	5.53	95
Tetrachloroethylene	3.81	1.05	2.26	5.55	98
Tetrahydrofuran	2.36	2.06	0.829 J	5.49	
Toluene	1.17	1.00	0.60	11.2	3800
Trans-1,2-dichloroethene	<0.079	0.036 J	<0.079	Not Detected	56
Trans-1,3-dichloropropene	0.045	<0.036	<0.036	0.059	41
Trichloroethene	0.258	0.290	0.124	35.2	28
Trichlorofluoromethane	1.84	2.09	2.26	3.75	
Vinyl acetate	<0.704	<0.095	<0.095	Not Detected	
Vinyl bromide	<0.874	<0.101	<0.101	Not Detected	
Vinyl chloride	<0.051	<0.015	<0.015	Not Detected	19

TABLE 5

Soil Gas Chemical Analysis Results - Building 100
 Cummings Center, Beverly, MA
 2018-2019

Sample ID	SV-7	SV-7	SV-7	Maximum Concentrations	MassDEP Residential Sub-Slab Soil Gas Screening Values
Sample Location	Building 100 Suite S-135-C				
Sample Type	Soil Gas	Soil Gas	Soil Gas	Soil Gas	
Date Sampled	4/20/2018	5/4/2019	8/10/2019		
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)					
1,3-Butadiene	<0.50	<0.50	<0.50	Not Detected	
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	Not Detected	2700
Benzene	<0.60	<0.60	<0.60	1.8	160
Toluene	1.1	0.93	<0.90	12	3800
Ethylbenzene	<0.90	<0.90	<0.90	8.3	520
m- & p- Xylenes	3.3	<0.90	<0.90	37	1400
o-Xylenes	1.4	<0.90	<0.90	25	1400
Naphthalene	1.3	<1.1	1.3	100	42
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)					
C ₅ -C ₈ Aliphatic Hydrocarbons	33	<10	14	190	4100
C ₉ -C ₁₂ Aliphatic Hydrocarbons	820	40	39	820	4800
C ₉ -C ₁₀ Aromatic Hydrocarbons	13	<10	<10	89	700

Notes:

Samples collected by FSL Associates, Inc.
 Samples submitted to Alpha Analytical of Mansfield, MA
 Results presented in µg/m³
 J - estimated concentration quantified below reporting limit
 E - estimated
 NR - Not Reported
 BOLD = Detected above laboratory standards
 gray shaded = detected above applicable screening value
 blue shaded = analytical detection limit above applicable screening value
 < = not detected above laboratory detection limit shown
 MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, Mass Policy WSC# 16-435, October 2016.

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landing

Cummings Center, Beverly, MA

2018-2019

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landing

Cummings Center, Beverly, MA

2018-2019

Sample ID	SG-1	SG-1	SG-1	SG-2	SG-2	SG-2	SG-3	SG-3
Sample Location	Elliott Landing							
Sample Type	Soil Gas							
Date Sampled	1/15/2018	4/20/2018	8/10/2019	1/15/2018	4/20/2018	8/10/2019	1/15/2018	4/20/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	1.3	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Toluene	2.3	<0.90	1.4	<0.90	<0.90	<0.90	<0.90	1.2
Ethylbenzene	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90
m- & p- Xylenes	1.2	1.5	1.0	<0.90	1.6	<0.90	<0.90	1.9
o-Xylenes	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90
Naphthalene	<1.1	3.2	<1.1	<1.1	<1.1	<1.1	120	<1.1
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	21	350	19	36	27	12	40	38
C ₉ -C ₁₂ Aliphatic Hydrocarbons	85	580	73	59	440	29	120	340
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	<10	<10	<10	<10	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

J - estimated concentration quantified below reporting limit

E - estimated

NR - Not Reported

BOLD = Detected above laboratory standards

gray shaded = detected above applicable screening value

blue shaded = analytical detection limit above applicable screening value

< = not detected above laboratory detection limit shown

MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, MassDEP

Policy WSC# 16-435, October 2016.

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landin

Cummings Center, Beverly, MA

2018-2019

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landing

Cummings Center, Beverly, MA

2018-2019

Sample ID	SG-3	SG-4	SG-4	Duplicate of SG-4	SG-5	SG-5	SG-6	SG-6
Sample Location	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing	Elliott Landing
Sample Type	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
Date Sampled	8/10/2019	1/15/2018	4/20/2018	1/15/2018	1/15/2018	4/20/2018	1/15/2018	4/20/2018
Air-Phase Petroleum Hydrocarbon Target Analytes - APH (µg/m³)								
1,3-Butadiene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Benzene	0.77	<0.60	<0.60	<0.60	<0.60	<0.60	0.76	<0.60
Toluene	2.1	<0.90	<0.90	<0.90	<0.90	<0.90	1.2	<0.90
Ethylbenzene	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90
m- & p- Xylenes	1.8	<0.90	1.1	<0.90	<0.90	1.8	<0.90	1.0
o-Xylenes	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90	<0.90
Naphthalene	<1.1	<1.1	<1.1	18	<1.1	<1.1	<1.1	4.2
Air-Phase Petroleum Hydrocarbons - APH (µg/m³)								
C ₆ -C ₈ Aliphatic Hydrocarbons	78	16	17	13	19	82	34	29
C ₉ -C ₁₂ Aliphatic Hydrocarbons	86	42	260	34	100	400	240	390
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	<10	<10	<10	<10	<10	<10	<10

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in µg/m³

J - estimated concentration quantified below reporting limit

E - estimated

NR - Not Reported

BOLD = Detected above laboratory standards

gray shaded = detected above applicable screening value

blue shaded = analytical detection limit above applicable screening value

< = not detected above laboratory detection limit shown

MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, Mass

Policy WSC# 16-435, October 2016.

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landir
 Cummings Center, Beverly, MA
 2018-2019

Sample ID	Duplicate of SG-6	MAX	MassDEP Residential Sub-Slab Soil Gas Screening Values
Sample Location	Elliott Landing	Elliott Landing	
Sample Type	Soil Gas	Soil Gas	
Date Sampled	4/20/2018		
Volatile Organic Compounds (µg/m³)			
1,1,1-trichloroethane	0.316	4.29	210
1,1,2,2-tetrachloroethane	<0.137	Not Detected	2.8
1,1,2-trichloroethane	<0.109	Not Detected	10
1,1-dichloroethane	0.085	0.777	56
1,1-dichloroethene	<0.079	Not Detected	56
1,2,4-trichlorobenzene	<0.371	Not Detected	28
1,2,4-trimethylbenzene	1.15	1.71	
1,2-dibromoethane	<0.154	Not Detected	0.54
1,2-dichlorobenzene	<0.120	0.156	50
1,2-dichloroethane	0.121	0.243	6.3
1,2-dichloropropane	<0.092	Not Detected	8.6
1,3,5-trimethylbenzene	0.251	0.408	
1,3-butadiene	<0.044	0.186	
1,3-dichlorobenzene	<0.120	Not Detected	42
1,4-dichlorobenzene	0.06	0.108	35
1,4-dioxane	<0.360	Not Detected	33
2,2,4-trimethylpentane	<0.934	0.556	
2-butanone	0.646	20.4	850
2-hexanone	<0.820	0.816	
3-chloropropene	<0.626	Not Detected	
4-Ethyltoluene	0.182	0.315	
Acetone	5.91	27.8	6400
Benzene	0.112	1.26	160
Benzyl Chloride	<1.04	Not Detected	
Bromodichloromethane	<0.134	0.241	9.2
Bromoform	<0.207	Not Detected	150
Bromomethane	<0.078	0.245	42
Carbon disulfide	<0.623	5.98	
Carbon tetrachloride	0.101	0.56	38
Chlorobenzene	<0.461	Not Detected	160
Chloroethane	0.053	1.93	
Chloroform	1.18	24.1	130
Chloromethane	<0.413	2.89	
Cis-1,2-dichloroethene	0.400	2.6	56
Cis-1,3-dichloropropene	<0.091	Not Detected	41
Cyclohexane	<0.688	0.293	
Dibromochloromethane	<0.170	Not Detected	6.8
Dichlorodifluoromethane	1.92	3	
Ethanol	5.5	36	
Ethyl acetate	<1.80	1.76	
Ethybenzene	0.226	0.669	520
Freon-113	0.529	1.07	
Freon-114	0.105	0.657	
Hexachlorobutadiene	<0.533	Not Detected	7.4
Hexane	0.127	11.2	
Isopropyl alcohol	1.14	4.03	
Methylene chloride	<1.74	2.52	770
MBK	<2.05	Not Detected	150
MTBE	<0.721	Not Detected	2700
M+p-xylene	1.00	2	1400
n-heptane	<0.820	0.34	
Naphthalene	7.81	110	42
o-xylene	0.495	0.899	1400
Propylene	<0.861	5.37	
Styrene	0.439	2.07	95
Tetrachloroethylene	2.80	17.3	98
Tetrahydrofuran	0.153	14.7	
Toluene	0.456	2.23	3800
Trans-1,2-dichloroethene	0.079	0.702	56
Trans-1,3-dichloropropene	<0.091	0.073	41
Trichloroethene	2.68	13.5	28
Trichlorofluoromethane	1.42	8.65	
Vinyl acetate	<0.704	0.44	
Vinyl bromide	<0.874	Not Detected	
Vinyl chloride	0.026	0.026	19

TABLE 6

Soil Gas Chemical Analysis Results - Elliott Landing
 Cummings Center, Beverly, MA
 2018-2019

Sample ID	Duplicate of SG-6	MAX	MassDEP Residential Sub-Slab Soil Gas Screening Values
Sample Location	Elliott Landing	Elliott Landing	
Sample Type	Soil Gas	Soil Gas	
Date Sampled	4/20/2018		
Air-Phase Petroleum Hydrocarbon Target Analytes - APH ($\mu\text{g}/\text{m}^3$)			
1,3-Butadiene	<0.50	Not Detected	
Methyl-tert-butyl ether	<0.70	Not Detected	2700
Benzene	<0.60	1.3	160
Toluene	<0.90	2.3	3800
Ethylbenzene	<0.90	Not Detected	520
m- & p- Xylenes	0.96	1.9	1400
o-Xylenes	<0.90	Not Detected	1400
Naphthalene	8.8	120	42
Air-Phase Petroleum Hydrocarbons - APH ($\mu\text{g}/\text{m}^3$)			
C ₅ -C ₈ Aliphatic Hydrocarbons	20	350	4100
C ₉ -C ₁₂ Aliphatic Hydrocarbons	420	580	4800
C ₉ -C ₁₀ Aromatic Hydrocarbons	<10	Not Detected	700

Notes:

Samples collected by FSL Associates, Inc.

Samples submitted to Alpha Analytical of Mansfield, MA

Results presented in $\mu\text{g}/\text{m}^3$

J = estimated concentration quantified below reporting limit

E = estimated

NR = Not Reported

BOLD = Detected above laboratory standards

gray shaded = detected above applicable screening value

blue shaded = analytical detection limit above applicable screening value

< = not detected above laboratory detection limit shown

MassDEP Residential Threshold Values are from Vapor Intrusion Guidance, Mass Policy WSC# 16-435, October 2016.

APPENDIX A

SOIL GAS AND INDOOR AIR SAMPLING CANISTER FIELD RECORDS AND ANALYTICAL ANALYSIS RESULTS



Environmental Engineering, Civil Engineering
Forensic Engineering, Construction Services

Environmental Engineering

Forensic Engineering

Civil Engineering

Construction Services

Air Sampling Log-Sheet

Site: Cummings Beverly Indoor Air

FSL Sample I.D.	End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Location	Canister I.D.	Regulator I.D.
S-135C.1	8/9	0738	0730	-29.77	-4.70		926	0116
S-135C.2		0734	0728	-29.75	-4.58		2932	0328
S-135C.3		0733	0727	-29.89	-5.98		1627	0208
S-140A.1	8/9/19	0719	0701	-29.70	-5.95		977	0234
S-140A.2		0721	0709	-29.70	-7.32		594	0550
S-140A.3		0722	0705	-29.31	-4.90		1937	07850
S-140A.4		0723	0703	-29.72	-0.34		2961	01222
Outdoor Control		0744	0729	-30.03	-9.30		2774	0837
Field Duplicate-1		0738	0730	-30.28	-6.51		1603	0382
Elliott Landing-1	0808	0744	0744	-29.97	-8.94		759	0836
Elliott Landing-2	0813	0750	0748	-29.88	-8.81		2102	01203
Elliott Landing-3	0820	0748	0748	-29.86	-7.95		2366	0776
Field Duplicate-2	0820	0748	0748	-29.66	-7.58		2485	0716

135
C-1

Dump
Elliot

**SOIL VAPOR MONITORING REPORT
CUMMINGS CENTER - AUGUST 2019**

Client:	FSL Associates				Site: Cummings Center				Weather Conditions:			
Report to:	Bruce Hoskins				Beverly, MA				Sunny +/- 70F			
Field Technician(s):	C. Randall				Date of Sampling: August 10, 2019							
Location ID	Can ID	Regulator ID	Can Size (L)	Can Pressure Start - LAB ("Hg)	Can Pressure Start - FIELD ("Hg)	Can Pressure End ("Hg)	Start Time (hh:mm)	End Time (hh:mm)	Slab Thickness	Water Present	Helium in Shroud (%)	Helium in S.S. Tube (ppm)
SG-1	2339	01135	2.7	-29.8	-29.6	-0.2	07:52	08:50	--	No	12.7	0.0
SG-2	140	01009	2.7	-29.7	-29.4	-5.4	10:25	10:54	--	No	12.2	0.0
SG-3	408	01011	2.7	-29.5	-29.4	-4.5	10:34	11:04	--	No	--	--
SV-4	2424	0199	2.7	-29.5	-29.6	-5.2	09:28	09:58	--	No	--	--
SV-5	2040	01013	2.7	-29.5	-28.8	-2.9	08:25	08:58	--	No	--	--
SV-6	494	01081	2.7	-29.6	-29.3	-4.4	08:43	09:10	--	No	--	--
SV-7	2589	0765	2.7	-29.6	-29.5	-3.7	09:15	09:53	--	No	--	--
DUP	2767	01136	2.7	-29.6	-29.3	-2.8	08:25	08:58	--	No	--	--

Executive Summary:

In accordance with EST's standard operating procedures (SOP) and Massachusetts Department of Environmental Protection (MA DEP) guidelines, EST field staff collected sub-slab (soil vapor) samples at the above referenced property. Prior to sampling, a shut in test was performed to confirm no observable loss of vacuum within the sample train. The sample train was purged (minimum three volumes) prior to opening the regulator on the summa can to begin sample collection. Regulators were set to collect samples over a (30) thirty minute period, at a purge rate not exceeding 200 mL/minute. Upon sampling collection, summa cans were placed in laboratory supplied lockable containers for delivery to Alpha Analytical, a state certified laboratory with the associated chain of custody documentation.

Please Note: Shut-in tests were not performed at locations SV-4, SV-5, DUP, SV-6, SV-7, and SG-3. Due to the points close location to immobile objects, the shroud was not able to be completely sealed over the locations.

Reviewed By:

Date:

8/15/19

Client: FSL Associates
 Date: 8/10/2019

Site: Cummings Center - Beverly
 Weather: Sunny, 70's

Scope of Work: Sampling 7 permanent vapor points and 1 duplicate sample at the Cummings Center, Beverly, MA.

Sample ID	SG-1	SV-5 SG-5	DUP	SV-6	SV-7
Can ID	2339	2040	2767	494	2589
Regulator ID	01135	01013	01136	01081	0765
Can size	2.7	2.7	2.7	2.7	2.7
Indoor (in), Background(Bk), Sub-slab (SS)	SS	SS	SS	SS	SS
Flow controller readout (ml/min)	72	72	72	72	72
Can pressure start ("Hg) - LAB	-29.810	-29.5	-29.6	-29.6	-29.6
Can pressure start ("Hg) - FIELD	-29.64	-28.81	-29.35	-29.39	-29.56
Can pressure end ("Hg)	-0.25	-2.93	-2.86	-4.42	-3.68
Start time	0752	0825	0825	0843	0915
End time	0850	0858	0858	0910	0953
Barometric pressure start ("Hg)	29.73	29.74	29.74	29.74	29.74
Barometric pressure end ("Hg)	29.74	2.974	2.974	2.974	29.74
Temperature start (°F)	70°F	70°F	70°F	71°F	72°F
Temperature end (°F)	71°F	72°F	72°F	72°F	73

Sub-slab Sampling

Slab thickness ("")	—	—	—	—	—
Water present	NO	NO	NO	NO	NO
Helium in shroud (%) (10% - 20%)	12.7	—	—	—	—
Helium in sub-slab sample tube (ppm)	0.0	—	—	—	—
1/4" OD sample tube length (")	24	24	24	24	24
Sample tube purge, Gillian pump (min) (1/4" tubing volume = 5.43 ml/ft)	2	2	2	2	2
Shut in Test: -10 PSI for 1 minute	Yes	Yes	Yes	Yes	Yes

Sampling Notes: Could not perform helium check on SV-5, DUP, SV-4, SV-7, SV-4 & SG-3. DUP taken @ SV-5.

Technician: CLP/JA

Client: FSL Associates
 Date: 8/10/2019

Site: Cummings Center - Beverly
 Weather: Sunny, 70°

Scope of Work: Sampling 7 permanent vapor points and 1 duplicate sample at the Cummings Center, Beverly, MA.

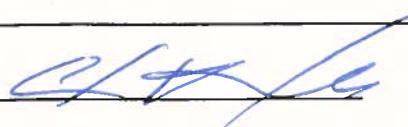
Sample ID	SV-4	SG-2	SG-3		
Can ID	2424	140	408		
Regulator ID	0199	01009	01011		
Can size	2.7	2.7	2.7		
Indoor (In), Background(Bk), Sub-slab (SS)	55	55	55		
Flow controller readout (ml/min)	72	72	72		
Can pressure start ("Hg) - LAB	-29.5	-29.7	-29.5		
Can pressure start ("Hg) - FIELD	-29.62	-29.47	-29.46		
Can pressure end ("Hg)	-5.23	-5.43	-4.50		
Start time	0928	1025	1034		
End time	0958	1054	1104		
Barometric pressure start ("Hg)	29.74	29.73	29.73		
Barometric pressure end ("Hg)	29.74	29.73	29.73		
Temperature start (°F)	73°F	80°F	81°F		
Temperature end (°F)	73°F	79°F	79°F		

Sub-slab Sampling

Slab thickness ("")	—	—	—	
Water present	NO	NO	NO	
Helium in shroud (%) (10% - 20%)	12.2	12.2	—	
Helium in sub-slab sample tube (ppm)	0.0	0.0	—	
1/4" OD sample tube length ("")	24	24	24	
Sample tube purge, Gillian pump (min) (1/4" tubing volume = 5.43 ml/ft)	2	2	2	
Shut in Test: -10 PSI for 1 minute	Yes	Yes	Yes	

Sampling Notes:

Technician:





ANALYTICAL REPORT

Lab Number:	L1936134
Client:	FSL Associates 358 Chestnut Hill Ave. Brighton, MA 02135
ATTN:	Bruce Hoskins
Phone:	(617) 232-0001
Project Name:	CUMMINGS BEVERLY
Project Number:	CUMMINGS BEVERLY
Report Date:	08/20/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1936134-01	S-135C.1	AIR	BEVERLY, MA	08/09/19 07:30	08/12/19
L1936134-02	S-135C.2	AIR	BEVERLY, MA	08/09/19 07:28	08/12/19
L1936134-03	S-135C.3	AIR	BEVERLY, MA	08/09/19 07:27	08/12/19
L1936134-04	S-140A.1	AIR	BEVERLY, MA	08/09/19 07:01	08/12/19
L1936134-05	S-140A.2	AIR	BEVERLY, MA	08/09/19 07:09	08/12/19
L1936134-06	S-140A.3	AIR	BEVERLY, MA	08/09/19 07:05	08/12/19
L1936134-07	S-140A.4	AIR	BEVERLY, MA	08/09/19 07:03	08/12/19
L1936134-08	OUTDOOR CONTROL	AIR	BEVERLY, MA	08/09/19 07:29	08/12/19
L1936134-09	ELLIOTT LANDING-1	AIR	BEVERLY, MA	08/09/19 07:44	08/12/19
L1936134-10	ELLIOTT LANDING-2	AIR	BEVERLY, MA	08/09/19 07:50	08/12/19
L1936134-11	ELLIOTT LANDING-3	AIR	BEVERLY, MA	08/09/19 07:48	08/12/19
L1936134-12	FIELD DUPLICATE-1	AIR	BEVERLY, MA	08/09/19 07:30	08/12/19
L1936134-13	FIELD DUPLICATE-2	AIR	BEVERLY, MA	08/09/19 07:48	08/12/19
L1936134-14	SV-4	SOIL_VAPOR	BEVERLY, MA	08/10/19 09:58	08/12/19
L1936134-15	SV-5	SOIL_VAPOR	BEVERLY, MA	08/10/19 08:58	08/12/19
L1936134-16	SV-6	SOIL_VAPOR	BEVERLY, MA	08/10/19 09:10	08/12/19
L1936134-17	SV-7	SOIL_VAPOR	BEVERLY, MA	08/10/19 09:53	08/12/19
L1936134-18	SG-1	SOIL_VAPOR	BEVERLY, MA	08/10/19 08:50	08/12/19
L1936134-19	SG-2	SOIL_VAPOR	BEVERLY, MA	08/10/19 10:54	08/12/19
L1936134-20	SG-3	SOIL_VAPOR	BEVERLY, MA	08/10/19 11:04	08/12/19
L1936134-21	SG FIELD DUPLICATE	SOIL_VAPOR	BEVERLY, MA	08/10/19 08:58	08/12/19

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on August 6, 2019. The canister certification results are provided as an addendum.

L1936134-01-03: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1936134-01-07,12: The sample was re-analyzed on dilution in order to quantify the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

L1936134-04: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1936134-12: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

WG1274119-5: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

The WG1274355-3 LCS recovery for propylene (136%), tert-butyl alcohol (52%), tetrahydrofuran (132%), 2,2-dichloropropane (58%), ethyl-tert-butyl-ether (65%), 2-hexanone (167%), 1,2-dibromoethane (133%), styrene (135%), 1,1,2,2-tetrachloroethane (131%), o-xylene (131%), nonane (c9) (142%), 4-ethyltoluene (136%), 1,3,5-trimethylbenzene (134%), 1,2,4-trimethylbenzene (141%), 1,3-dichlorobenzene (144%), 1,4-dichlorobenzene (145%), 1,2-dichlorobenzene (144%), n-butylbenzene (141%), 1,2,4-trichlorobenzene (146%), 1,2,3-trichlorobenzene (136%) and hexachlorobutadiene (140%) is above the upper 130% acceptance limit. All samples associated with this LCS do not have reportable amounts of this analyte.

The WG1274468-3 LCS recovery for dibromochloromethane (137%), bromoform (151%) and benzyl chloride (134%) is above the upper 130% acceptance limit. All samples associated with this LCS do not have reportable amounts of this analyte

The WG1274119-3 LCS recovery for dibromochloromethane (141%), bromoform (154%) and hexachlorobutadiene (131%) is above the upper 130% acceptance limit. All samples associated with this LCS

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Case Narrative (continued)

do not have reportable amounts of this analyte.

WG1274119-5: The sample was re-analyzed on dilution in order to quantify the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

Petroleum Hydrocarbons in Air

L1936134-01, -02, -03, -05 through -13: acetone, isopropyl alcohol, siloxane(s), 2-butanone, ethyl acetate, tetrahydrofuran, 1-butanol, and hexanal are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-01 through -07, -09 through -14, -16 through -18 and -20: alpha-Pinene, D-limonene, siloxane(s) are present in the C9-C12 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C9-C12 range result since they are not petroleum hydrocarbons.

L1936134-04: acetone, isopropyl alcohol, siloxane(s), 2-butanone, ethyl acetate, tetrahydrofuran, 1-butanol, penatnal, hexanal, and tetrachloroethane are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-08: alpha-Pinene and siloxane(s) are present in the C9-C12 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C9-C12 range result since they are not petroleum hydrocarbons.

L1936134-14 through 17 and 19: acetone, isopropyl alcohol, siloxane(s), 2-butanone, 1,1,1-trichloroethane, tetrahydrofuran, 1-butanol, hexanal, and tetrachloroethane are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-15: alpha-Pinene, camphene, D-limonene, siloxane(s) are present in the C9-C12 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C9-C12 range

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Case Narrative (continued)

result since they are not petroleum hydrocarbons.

L1936134-18: acetone, isopropyl alcohol, siloxane(s), 2-butanone, tetrahydrofuran, 1-butanol, hexanal, and tetrachloroethane are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-19: D-limonene and siloxane(s) are present in the C9-C12 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C9-C12 range result since they are not petroleum hydrocarbons.

L1936134-20: acetone, isopropyl alcohol, siloxane(s), 2-butanone, 1,1,1-trichloroethane, tetrahydrofuran, trichloroethane, 1-butanol, penatnal, hexanal, and tetrachloroethane are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-21: acetone, isopropyl alcohol, carbon disulfide, siloxane(s), 2-butanone, 1-butanol, and tetrahydrofuran are present in the C5-C8 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C5-C8 range result since they are not petroleum hydrocarbons.

L1936134-21: D-Limonene and siloxane(s) are present in the C9-C12 Aliphatic Hydrocarbon range. The response for these analytes was not included in the calculation of the C9-C12 range result since they are not petroleum hydrocarbons.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Christopher J. Anderson Christopher J. Anderson

Title: Technical Director/Representative

Date: 08/20/19

AIR



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-01
Client ID: S-135C.1
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:30
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 17:13
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.315	0.500	0.034	0.542	0.861	0.059	J	1
Dichlorodifluoromethane	0.447	0.200	0.011	2.21	0.989	0.055		1
Chloromethane	0.602	0.200	0.048	1.24	0.413	0.099		1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.022	0.020	0.007	0.049	0.044	0.016		1
Bromomethane	0.015	0.020	0.008	0.058	0.078	0.031	J	1
Chloroethane	0.017	0.100	0.017	0.045	0.264	0.045	J	1
Ethanol	539	5.00	0.157	1020	9.42	0.296	E	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	19.1	1.00	0.366	45.4	2.38	0.869		1
Trichlorofluoromethane	0.478	0.050	0.011	2.69	0.281	0.064		1
Isopropanol	178	0.500	0.153	438	1.23	0.376	E	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.446	0.500	0.250	1.55	1.74	0.869	J	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196		1
Freon-113	0.063	0.050	0.013	0.483	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	0.012	0.020	0.007	0.049	0.081	0.028	J	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	1.33	0.500	0.016	3.92	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-01	Date Collected:	08/09/19 07:30
Client ID:	S-135C.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.963	0.500	0.038	3.47	1.80	0.137	1
Chloroform	0.104	0.020	0.005	0.508	0.098	0.024	1
Tetrahydrofuran	0.377	0.500	0.037	1.11	1.47	0.109	J 1
1,2-Dichloroethane	0.028	0.020	0.005	0.113	0.081	0.020	1
n-Hexane	0.185	0.200	0.033	0.652	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.152	0.100	0.019	0.486	0.319	0.061	1
Carbon tetrachloride	0.076	0.020	0.007	0.478	0.126	0.044	1
Cyclohexane	0.090	0.200	0.030	0.310	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.032	0.020	0.008	0.214	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	0.123	0.200	0.027	0.575	0.934	0.126	J 1
Heptane	1.73	0.200	0.032	7.09	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.252	0.500	0.005	1.03	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.537	0.050	0.006	2.02	0.188	0.023	1
2-Hexanone	0.226	0.200	0.030	0.926	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.024	0.020	0.008	0.163	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-01	Date Collected:	08/09/19 07:30
Client ID:	S-135C.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.164	0.020	0.007	0.712	0.087	0.030	1
p/m-Xylene	0.607	0.040	0.007	2.64	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.106	0.020	0.007	0.451	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.232	0.020	0.008	1.01	0.087	0.035	1
4-Ethyltoluene	0.038	0.020	0.010	0.187	0.098	0.049	1
1,3,5-Trimethylbenzene	0.049	0.020	0.005	0.241	0.098	0.025	1
1,2,4-Trimethylbenzene	0.169	0.020	0.007	0.831	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	0.014	0.020	0.008	0.084	0.120	0.048	J 1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	0.011	0.050	0.010	0.082	0.371	0.074	J 1
Naphthalene	0.312	0.050	0.008	1.64	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	91		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-01 D	Date Collected:	08/09/19 07:30
Client ID:	S-135C.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/20/19 08:44
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Ethanol	726	10.0	1.58	1370	18.8	2.98		2
Isopropanol	248	1.00	0.696	610	2.46	1.71		2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	104		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	107		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-02
Client ID: S-135C.2
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:28
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 17:53
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	0.387	0.500	0.034	0.666	0.861	0.059	J 1
Dichlorodifluoromethane	0.464	0.200	0.011	2.29	0.989	0.055	1
Chloromethane	0.650	0.200	0.048	1.34	0.413	0.099	1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	0.024	0.020	0.007	0.053	0.044	0.016	1
Bromomethane	0.015	0.020	0.008	0.058	0.078	0.031	J 1
Chloroethane	0.022	0.100	0.017	0.058	0.264	0.045	J 1
Ethanol	505	5.00	0.157	952	9.42	0.296	E 1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	18.9	1.00	0.366	44.9	2.38	0.869	1
Trichlorofluoromethane	0.400	0.050	0.011	2.25	0.281	0.064	1
Isopropanol	166	0.500	0.153	408	1.23	0.376	E 1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	0.395	0.500	0.250	1.37	1.74	0.869	J 1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	0.064	0.050	0.013	0.491	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	1.27	0.500	0.016	3.75	1.47	0.047	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-02	Date Collected:	08/09/19 07:28
Client ID:	S-135C.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	2.23	0.500	0.038	8.04	1.80	0.137	1
Chloroform	0.139	0.020	0.005	0.679	0.098	0.024	1
Tetrahydrofuran	0.446	0.500	0.037	1.32	1.47	0.109	J 1
1,2-Dichloroethane	0.033	0.020	0.005	0.134	0.081	0.020	1
n-Hexane	0.187	0.200	0.033	0.659	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.181	0.100	0.019	0.578	0.319	0.061	1
Carbon tetrachloride	0.086	0.020	0.007	0.541	0.126	0.044	1
Cyclohexane	0.111	0.200	0.030	0.382	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.045	0.020	0.008	0.301	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.015	0.020	0.007	0.081	0.107	0.038	J 1
2,2,4-Trimethylpentane	0.128	0.200	0.027	0.598	0.934	0.126	J 1
Heptane	1.32	0.200	0.032	5.41	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.236	0.500	0.005	0.967	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.599	0.050	0.006	2.26	0.188	0.023	1
2-Hexanone	0.180	0.200	0.030	0.738	0.820	0.123	J 1
Dibromochloromethane	0.014	0.020	0.008	0.119	0.170	0.068	J 1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.036	0.020	0.008	0.244	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-02	Date Collected:	08/09/19 07:28
Client ID:	S-135C.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.180	0.020	0.007	0.782	0.087	0.030	1
p/m-Xylene	0.574	0.040	0.007	2.49	0.174	0.030	1
Bromoform	0.019	0.020	0.015	0.196	0.207	0.155	J 1
Styrene	0.112	0.020	0.007	0.477	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.219	0.020	0.008	0.951	0.087	0.035	1
4-Ethyltoluene	0.058	0.020	0.010	0.285	0.098	0.049	1
1,3,5-Trimethylbenzene	0.074	0.020	0.005	0.364	0.098	0.025	1
1,2,4-Trimethylbenzene	0.233	0.020	0.007	1.15	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	0.016	0.050	0.010	0.119	0.371	0.074	J 1
Naphthalene	0.439	0.050	0.008	2.30	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	90		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-02 D	Date Collected:	08/09/19 07:28
Client ID:	S-135C.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/20/19 09:22
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Ethanol	652	10.0	1.58	1230	18.8	2.98		2
Isopropanol	231	1.00	0.696	568	2.46	1.71		2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	102		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-03
Client ID: S-135C.3
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:27
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 18:32
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	0.348	0.500	0.034	0.599	0.861	0.059	J 1
Dichlorodifluoromethane	0.460	0.200	0.011	2.27	0.989	0.055	1
Chloromethane	0.622	0.200	0.048	1.28	0.413	0.099	1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	0.023	0.020	0.007	0.051	0.044	0.016	1
Bromomethane	0.013	0.020	0.008	0.051	0.078	0.031	J 1
Chloroethane	0.017	0.100	0.017	0.045	0.264	0.045	J 1
Ethanol	550	5.00	0.157	1040	9.42	0.296	E 1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	19.2	1.00	0.366	45.6	2.38	0.869	1
Trichlorofluoromethane	0.442	0.050	0.011	2.48	0.281	0.064	1
Isopropanol	217	0.500	0.153	533	1.23	0.376	E 1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	0.430	0.500	0.250	1.49	1.74	0.869	J 1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	0.074	0.050	0.013	0.567	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	1.35	0.500	0.016	3.98	1.47	0.047	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-03	Date Collected:	08/09/19 07:27
Client ID:	S-135C.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	2.38	0.500	0.038	8.58	1.80	0.137	1
Chloroform	0.149	0.020	0.005	0.728	0.098	0.024	1
Tetrahydrofuran	0.568	0.500	0.037	1.68	1.47	0.109	1
1,2-Dichloroethane	0.037	0.020	0.005	0.150	0.081	0.020	1
n-Hexane	0.184	0.200	0.033	0.648	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.167	0.100	0.019	0.534	0.319	0.061	1
Carbon tetrachloride	0.085	0.020	0.007	0.535	0.126	0.044	1
Cyclohexane	0.116	0.200	0.030	0.399	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.041	0.020	0.008	0.275	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	0.126	0.200	0.027	0.589	0.934	0.126	J 1
Heptane	1.11	0.200	0.032	4.55	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.246	0.500	0.005	1.01	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.601	0.050	0.006	2.26	0.188	0.023	1
2-Hexanone	0.214	0.200	0.030	0.877	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.030	0.020	0.008	0.203	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-03	Date Collected:	08/09/19 07:27
Client ID:	S-135C.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Ethylbenzene	0.180	0.020	0.007	0.782	0.087	0.030		1
p/m-Xylene	0.637	0.040	0.007	2.77	0.174	0.030		1
Bromoform	ND	0.020	0.015	ND	0.207	0.155		1
Styrene	0.142	0.020	0.007	0.605	0.085	0.030		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048		1
o-Xylene	0.240	0.020	0.008	1.04	0.087	0.035		1
4-Ethyltoluene	0.064	0.020	0.010	0.315	0.098	0.049		1
1,3,5-Trimethylbenzene	0.077	0.020	0.005	0.379	0.098	0.025		1
1,2,4-Trimethylbenzene	0.253	0.020	0.007	1.24	0.098	0.034		1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,4-Dichlorobenzene	0.011	0.020	0.008	0.066	0.120	0.048	J	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,2,4-Trichlorobenzene	0.014	0.050	0.010	0.104	0.371	0.074	J	1
Naphthalene	0.613	0.050	0.008	3.21	0.262	0.042		1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	92		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-03 D	Date Collected:	08/09/19 07:27
Client ID:	S-135C.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/20/19 10:01
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Ethanol	731	10.0	1.58	1380	18.8	2.98		2
Isopropanol	317	1.00	0.696	779	2.46	1.71		2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	106		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-04	Date Collected:	08/09/19 07:01
Client ID:	S-140A.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 19:11
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	2.21	0.500	0.034	3.80	0.861	0.059		1
Dichlorodifluoromethane	1.53	0.200	0.011	7.57	0.989	0.055		1
Chloromethane	0.548	0.200	0.048	1.13	0.413	0.099		1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.045	0.020	0.007	0.10	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.068	0.100	0.017	0.179	0.264	0.045	J	1
Ethanol	130	5.00	0.157	245	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	21.0	1.00	0.366	49.9	2.38	0.869		1
Trichlorofluoromethane	0.688	0.050	0.011	3.87	0.281	0.064		1
Isopropanol	252	0.500	0.153	619	1.23	0.376	E	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.840	0.500	0.250	2.92	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.075	0.200	0.063	0.234	0.623	0.196	J	1
Freon-113	0.067	0.050	0.013	0.514	0.383	0.097		1
trans-1,2-Dichloroethene	0.025	0.020	0.006	0.099	0.079	0.024		1
1,1-Dichloroethane	0.010	0.020	0.007	0.041	0.081	0.028	J	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	1.52	0.500	0.016	4.48	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-04	Date Collected:	08/09/19 07:01
Client ID:	S-140A.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	1.59	0.500	0.038	5.73	1.80	0.137	1
Chloroform	0.216	0.020	0.005	1.05	0.098	0.024	1
Tetrahydrofuran	0.815	0.500	0.037	2.40	1.47	0.109	1
1,2-Dichloroethane	0.035	0.020	0.005	0.142	0.081	0.020	1
n-Hexane	1.01	0.200	0.033	3.56	0.705	0.116	1
1,1,1-Trichloroethane	0.038	0.020	0.006	0.207	0.109	0.033	1
Benzene	0.134	0.100	0.019	0.428	0.319	0.061	1
Carbon tetrachloride	0.086	0.020	0.007	0.541	0.126	0.044	1
Cyclohexane	0.222	0.200	0.030	0.764	0.688	0.103	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.019	0.020	0.008	0.127	0.134	0.054	J 1
1,4-Dioxane	0.073	0.100	0.014	0.263	0.360	0.051	J 1
Trichloroethene	0.024	0.020	0.007	0.129	0.107	0.038	1
2,2,4-Trimethylpentane	0.145	0.200	0.027	0.677	0.934	0.126	J 1
Heptane	0.362	0.200	0.032	1.48	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.962	0.500	0.005	3.94	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	1.97	0.050	0.006	7.42	0.188	0.023	1
2-Hexanone	0.125	0.200	0.030	0.512	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.685	0.020	0.008	4.65	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-04
Client ID: S-140A.1
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:01
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Ethylbenzene	0.490	0.020	0.007	2.13	0.087	0.030		1
p/m-Xylene	1.63	0.040	0.007	7.08	0.174	0.030		1
Bromoform	ND	0.020	0.015	ND	0.207	0.155		1
Styrene	0.379	0.020	0.007	1.61	0.085	0.030		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048		1
o-Xylene	1.08	0.020	0.008	4.69	0.087	0.035		1
4-Ethyltoluene	3.15	0.020	0.010	15.5	0.098	0.049		1
1,3,5-Trimethylbenzene	3.95	0.020	0.005	19.4	0.098	0.025		1
1,2,4-Trimethylbenzene	12.7	0.020	0.007	62.4	0.098	0.034		1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074		1
Naphthalene	0.131	0.050	0.008	0.687	0.262	0.042		1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	93		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-04 D	Date Collected:	08/09/19 07:01
Client ID:	S-140A.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 09:28
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Isopropanol	290	1.25	0.382	713	3.07	0.939		2.5

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	81		60-140
bromochloromethane	82		60-140
chlorobenzene-d5	85		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-05	Date Collected:	08/09/19 07:09
Client ID:	S-140A.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 08/19/19 20:31
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Isopropanol	245	0.500	0.348	602	1.23	0.855		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	94		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-05
Client ID: S-140A.2
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:09
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 20:31
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	1.67	0.500	0.034	2.87	0.861	0.059	1
Dichlorodifluoromethane	1.28	0.200	0.011	6.33	0.989	0.055	1
Chloromethane	0.551	0.200	0.048	1.14	0.413	0.099	1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	0.045	0.020	0.007	0.10	0.044	0.016	1
Bromomethane	0.013	0.020	0.008	0.051	0.078	0.031	J 1
Chloroethane	0.073	0.100	0.017	0.193	0.264	0.045	J 1
Ethanol	211	5.00	0.157	398	9.42	0.296	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	29.1	1.00	0.366	69.1	2.38	0.869	1
Trichlorofluoromethane	0.588	0.050	0.011	3.30	0.281	0.064	1
Isopropanol	230	0.500	0.153	565	1.23	0.376	E 1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	0.818	0.500	0.250	2.84	1.74	0.869	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	0.075	0.200	0.063	0.234	0.623	0.196	J 1
Freon-113	0.065	0.050	0.013	0.498	0.383	0.097	1
trans-1,2-Dichloroethene	0.035	0.020	0.006	0.139	0.079	0.024	1
1,1-Dichloroethane	0.016	0.020	0.007	0.065	0.081	0.028	J 1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	1.66	0.500	0.016	4.90	1.47	0.047	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-05	Date Collected:	08/09/19 07:09
Client ID:	S-140A.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	2.89	0.500	0.038	10.4	1.80	0.137	1
Chloroform	0.202	0.020	0.005	0.986	0.098	0.024	1
Tetrahydrofuran	0.861	0.500	0.037	2.54	1.47	0.109	1
1,2-Dichloroethane	0.040	0.020	0.005	0.162	0.081	0.020	1
n-Hexane	0.984	0.200	0.033	3.47	0.705	0.116	1
1,1,1-Trichloroethane	0.145	0.020	0.006	0.791	0.109	0.033	1
Benzene	0.159	0.100	0.019	0.508	0.319	0.061	1
Carbon tetrachloride	0.080	0.020	0.007	0.503	0.126	0.044	1
Cyclohexane	0.181	0.200	0.030	0.623	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.035	0.020	0.008	0.234	0.134	0.054	1
1,4-Dioxane	0.046	0.100	0.014	0.166	0.360	0.051	J 1
Trichloroethene	0.032	0.020	0.007	0.172	0.107	0.038	1
2,2,4-Trimethylpentane	0.182	0.200	0.027	0.850	0.934	0.126	J 1
Heptane	1.08	0.200	0.032	4.43	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	1.55	0.500	0.005	6.35	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	2.67	0.050	0.006	10.1	0.188	0.023	1
2-Hexanone	0.130	0.200	0.030	0.533	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.603	0.020	0.008	4.09	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-05	Date Collected:	08/09/19 07:09
Client ID:	S-140A.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.710	0.020	0.007	3.08	0.087	0.030	1
p/m-Xylene	2.40	0.040	0.007	10.4	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.478	0.020	0.007	2.04	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	1.20	0.020	0.008	5.21	0.087	0.035	1
4-Ethyltoluene	2.62	0.020	0.010	12.9	0.098	0.049	1
1,3,5-Trimethylbenzene	3.46	0.020	0.005	17.0	0.098	0.025	1
1,2,4-Trimethylbenzene	11.2	0.020	0.007	55.1	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.185	0.050	0.008	0.970	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	92		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-06	Date Collected:	08/09/19 07:05
Client ID:	S-140A.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 08/19/19 21:10
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Isopropanol	190	0.500	0.348	467	1.23	0.855		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	95		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-06	Date Collected:	08/09/19 07:05
Client ID:	S-140A.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 21:10
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.612	0.500	0.034	1.05	0.861	0.059		1
Dichlorodifluoromethane	0.886	0.200	0.011	4.38	0.989	0.055		1
Chloromethane	0.606	0.200	0.048	1.25	0.413	0.099		1
Freon-114	0.017	0.050	0.012	0.119	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.031	0.020	0.007	0.069	0.044	0.016		1
Bromomethane	0.011	0.020	0.008	0.043	0.078	0.031	J	1
Chloroethane	0.067	0.100	0.017	0.177	0.264	0.045	J	1
Ethanol	202	5.00	0.157	381	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	159	1.00	0.366	378	2.38	0.869		1
Trichlorofluoromethane	0.410	0.050	0.011	2.30	0.281	0.064		1
Isopropanol	180	0.500	0.153	442	1.23	0.376	E	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.936	0.500	0.250	3.25	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.065	0.200	0.063	0.202	0.623	0.196	J	1
Freon-113	0.065	0.050	0.013	0.498	0.383	0.097		1
trans-1,2-Dichloroethene	0.035	0.020	0.006	0.139	0.079	0.024		1
1,1-Dichloroethane	0.017	0.020	0.007	0.069	0.081	0.028	J	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	1.55	0.500	0.016	4.57	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-06	Date Collected:	08/09/19 07:05
Client ID:	S-140A.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.012	0.020	0.007	0.048	0.079	0.028	J 1
Ethyl Acetate	7.27	0.500	0.038	26.2	1.80	0.137	1
Chloroform	0.154	0.020	0.005	0.752	0.098	0.024	1
Tetrahydrofuran	0.773	0.500	0.037	2.28	1.47	0.109	1
1,2-Dichloroethane	0.043	0.020	0.005	0.174	0.081	0.020	1
n-Hexane	0.619	0.200	0.033	2.18	0.705	0.116	1
1,1,1-Trichloroethane	0.080	0.020	0.006	0.436	0.109	0.033	1
Benzene	0.194	0.100	0.019	0.620	0.319	0.061	1
Carbon tetrachloride	0.088	0.020	0.007	0.554	0.126	0.044	1
Cyclohexane	0.160	0.200	0.030	0.551	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	0.033	0.100	0.014	0.119	0.360	0.051	J 1
Trichloroethene	0.066	0.020	0.007	0.355	0.107	0.038	1
2,2,4-Trimethylpentane	0.168	0.200	0.027	0.785	0.934	0.126	J 1
Heptane	3.68	0.200	0.032	15.1	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	1.06	0.500	0.005	4.34	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	5.18	0.050	0.006	19.5	0.188	0.023	1
2-Hexanone	0.163	0.200	0.030	0.668	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.352	0.020	0.008	2.39	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-06	Date Collected:	08/09/19 07:05
Client ID:	S-140A.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Ethylbenzene	0.530	0.020	0.007	2.30	0.087	0.030		1
p/m-Xylene	1.97	0.040	0.007	8.56	0.174	0.030		1
Bromoform	ND	0.020	0.015	ND	0.207	0.155		1
Styrene	11.4	0.020	0.007	48.5	0.085	0.030		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048		1
o-Xylene	0.844	0.020	0.008	3.67	0.087	0.035		1
4-Ethyltoluene	1.37	0.020	0.010	6.74	0.098	0.049		1
1,3,5-Trimethylbenzene	1.83	0.020	0.005	9.00	0.098	0.025		1
1,2,4-Trimethylbenzene	5.91	0.020	0.007	29.1	0.098	0.034		1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074		1
Naphthalene	0.264	0.050	0.008	1.38	0.262	0.042		1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	94		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-07	Date Collected:	08/09/19 07:03
Client ID:	S-140A.4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 08/19/19 21:49
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Isopropanol	166	0.500	0.348	408	1.23	0.855		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	98		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-07
Client ID: S-140A.4
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:03
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 21:49
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.770	0.500	0.034	1.33	0.861	0.059		1
Dichlorodifluoromethane	0.704	0.200	0.011	3.48	0.989	0.055		1
Chloromethane	0.615	0.200	0.048	1.27	0.413	0.099		1
Freon-114	0.014	0.050	0.012	0.098	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.029	0.020	0.007	0.064	0.044	0.016		1
Bromomethane	0.015	0.020	0.008	0.058	0.078	0.031	J	1
Chloroethane	0.058	0.100	0.017	0.153	0.264	0.045	J	1
Ethanol	190	5.00	0.157	358	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	208	1.00	0.366	494	2.38	0.869		1
Trichlorofluoromethane	0.318	0.050	0.011	1.79	0.281	0.064		1
Isopropanol	157	0.500	0.153	386	1.23	0.376	E	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.542	0.500	0.250	1.88	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196		1
Freon-113	0.064	0.050	0.013	0.491	0.383	0.097		1
trans-1,2-Dichloroethene	0.027	0.020	0.006	0.107	0.079	0.024		1
1,1-Dichloroethane	0.012	0.020	0.007	0.049	0.081	0.028	J	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	1.46	0.500	0.016	4.31	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-07	Date Collected:	08/09/19 07:03
Client ID:	S-140A.4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.011	0.020	0.007	0.044	0.079	0.028	J 1
Ethyl Acetate	7.89	0.500	0.038	28.4	1.80	0.137	1
Chloroform	0.128	0.020	0.005	0.625	0.098	0.024	1
Tetrahydrofuran	0.582	0.500	0.037	1.72	1.47	0.109	1
1,2-Dichloroethane	0.038	0.020	0.005	0.154	0.081	0.020	1
n-Hexane	0.435	0.200	0.033	1.53	0.705	0.116	1
1,1,1-Trichloroethane	0.046	0.020	0.006	0.251	0.109	0.033	1
Benzene	0.192	0.100	0.019	0.613	0.319	0.061	1
Carbon tetrachloride	0.087	0.020	0.007	0.547	0.126	0.044	1
Cyclohexane	0.150	0.200	0.030	0.516	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	0.036	0.100	0.014	0.130	0.360	0.051	J 1
Trichloroethene	0.112	0.020	0.007	0.602	0.107	0.038	1
2,2,4-Trimethylpentane	0.164	0.200	0.027	0.766	0.934	0.126	J 1
Heptane	3.99	0.200	0.032	16.4	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.655	0.500	0.005	2.68	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	5.72	0.050	0.006	21.6	0.188	0.023	1
2-Hexanone	0.202	0.200	0.030	0.828	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.217	0.020	0.008	1.47	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-07	Date Collected:	08/09/19 07:03
Client ID:	S-140A.4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.434	0.020	0.007	1.89	0.087	0.030	1
p/m-Xylene	1.79	0.040	0.007	7.77	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	20.2	0.020	0.007	86.0	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.743	0.020	0.008	3.23	0.087	0.035	1
4-Ethyltoluene	0.808	0.020	0.010	3.97	0.098	0.049	1
1,3,5-Trimethylbenzene	1.09	0.020	0.005	5.36	0.098	0.025	1
1,2,4-Trimethylbenzene	3.48	0.020	0.007	17.1	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.320	0.050	0.008	1.68	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	97		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-08	Date Collected:	08/09/19 07:29
Client ID:	OUTDOOR CONTROL	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 22:29
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.278	0.500	0.034	0.478	0.861	0.059	J	1
Dichlorodifluoromethane	0.464	0.200	0.011	2.29	0.989	0.055		1
Chloromethane	0.486	0.200	0.048	1.00	0.413	0.099		1
Freon-114	0.014	0.050	0.012	0.098	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.020	0.020	0.007	0.044	0.044	0.016		1
Bromomethane	0.016	0.020	0.008	0.062	0.078	0.031	J	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045		1
Ethanol	4.03	5.00	0.157	7.59	9.42	0.296	J	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	3.01	1.00	0.366	7.15	2.38	0.869		1
Trichlorofluoromethane	0.194	0.050	0.011	1.09	0.281	0.064		1
Isopropanol	0.739	0.500	0.153	1.82	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.422	0.500	0.250	1.47	1.74	0.869	J	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.188	0.200	0.063	0.585	0.623	0.196	J	1
Freon-113	0.063	0.050	0.013	0.483	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.246	0.500	0.016	0.726	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-08	Date Collected:	08/09/19 07:29
Client ID:	OUTDOOR CONTROL	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.063	0.500	0.038	0.227	1.80	0.137	J 1
Chloroform	0.027	0.020	0.005	0.132	0.098	0.024	1
Tetrahydrofuran	0.302	0.500	0.037	0.891	1.47	0.109	J 1
1,2-Dichloroethane	0.017	0.020	0.005	0.069	0.081	0.020	J 1
n-Hexane	0.118	0.200	0.033	0.416	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.177	0.100	0.019	0.565	0.319	0.061	1
Carbon tetrachloride	0.090	0.020	0.007	0.566	0.126	0.044	1
Cyclohexane	0.115	0.200	0.030	0.396	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	0.101	0.200	0.027	0.472	0.934	0.126	J 1
Heptane	0.081	0.200	0.032	0.332	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.066	0.500	0.005	0.270	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.325	0.050	0.006	1.22	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.013	0.020	0.008	0.088	0.136	0.054	J 1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-08	Date Collected:	08/09/19 07:29
Client ID:	OUTDOOR CONTROL	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.052	0.020	0.007	0.226	0.087	0.030	1
p/m-Xylene	0.154	0.040	0.007	0.669	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.069	0.020	0.007	0.294	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.062	0.020	0.008	0.269	0.087	0.035	1
4-Ethyltoluene	0.016	0.020	0.010	0.079	0.098	0.049	J 1
1,3,5-Trimethylbenzene	0.017	0.020	0.005	0.084	0.098	0.025	J 1
1,2,4-Trimethylbenzene	0.067	0.020	0.007	0.329	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.044	0.050	0.008	0.231	0.262	0.042	J 1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	91		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-09	Date Collected:	08/09/19 07:44
Client ID:	ELLIOTT LANDING-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 23:10
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.124	0.500	0.034	0.213	0.861	0.059	J	1
Dichlorodifluoromethane	0.463	0.200	0.011	2.29	0.989	0.055		1
Chloromethane	0.517	0.200	0.048	1.07	0.413	0.099		1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.012	0.020	0.007	0.027	0.044	0.016	J	1
Bromomethane	0.011	0.020	0.008	0.043	0.078	0.031	J	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045		1
Ethanol	40.4	5.00	0.157	76.1	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	7.40	1.00	0.366	17.6	2.38	0.869		1
Trichlorofluoromethane	0.202	0.050	0.011	1.14	0.281	0.064		1
Isopropanol	3.62	0.500	0.153	8.90	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.070	0.200	0.063	0.218	0.623	0.196	J	1
Freon-113	0.066	0.050	0.013	0.506	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.371	0.500	0.016	1.09	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-09	Date Collected:	08/09/19 07:44
Client ID:	ELLIOTT LANDING-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.802	0.500	0.038	2.89	1.80	0.137	1
Chloroform	0.046	0.020	0.005	0.225	0.098	0.024	1
Tetrahydrofuran	0.264	0.500	0.037	0.779	1.47	0.109	J 1
1,2-Dichloroethane	0.025	0.020	0.005	0.101	0.081	0.020	1
n-Hexane	0.102	0.200	0.033	0.359	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.089	0.100	0.019	0.284	0.319	0.061	J 1
Carbon tetrachloride	0.087	0.020	0.007	0.547	0.126	0.044	1
Cyclohexane	0.052	0.200	0.030	0.179	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.018	0.020	0.007	0.097	0.107	0.038	J 1
2,2,4-Trimethylpentane	0.059	0.200	0.027	0.276	0.934	0.126	J 1
Heptane	0.055	0.200	0.032	0.225	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.054	0.500	0.005	0.221	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.308	0.050	0.006	1.16	0.188	0.023	1
2-Hexanone	0.033	0.200	0.030	0.135	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.021	0.020	0.008	0.142	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-09	Date Collected:	08/09/19 07:44
Client ID:	ELLIOTT LANDING-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.056	0.020	0.007	0.243	0.087	0.030	1
p/m-Xylene	0.139	0.040	0.007	0.604	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.057	0.020	0.007	0.243	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.062	0.020	0.008	0.269	0.087	0.035	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049	1
1,3,5-Trimethylbenzene	0.012	0.020	0.005	0.059	0.098	0.025	J 1
1,2,4-Trimethylbenzene	0.051	0.020	0.007	0.251	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	0.014	0.020	0.008	0.084	0.120	0.048	J 1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.047	0.050	0.008	0.246	0.262	0.042	J 1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	90		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-10	Date Collected:	08/09/19 07:50
Client ID:	ELLIOTT LANDING-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 23:49
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.350	0.500	0.034	0.602	0.861	0.059	J	1
Dichlorodifluoromethane	0.459	0.200	0.011	2.27	0.989	0.055		1
Chloromethane	0.483	0.200	0.048	0.997	0.413	0.099		1
Freon-114	0.014	0.050	0.012	0.098	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.028	0.020	0.007	0.062	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045		1
Ethanol	52.2	5.00	0.157	98.4	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	12.9	1.00	0.366	30.6	2.38	0.869		1
Trichlorofluoromethane	0.210	0.050	0.011	1.18	0.281	0.064		1
Isopropanol	3.94	0.500	0.153	9.68	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196		1
Freon-113	0.063	0.050	0.013	0.483	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.471	0.500	0.016	1.39	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-10	Date Collected:	08/09/19 07:50
Client ID:	ELLIOTT LANDING-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.554	0.500	0.038	2.00	1.80	0.137	1
Chloroform	0.049	0.020	0.005	0.239	0.098	0.024	1
Tetrahydrofuran	0.319	0.500	0.037	0.941	1.47	0.109	J 1
1,2-Dichloroethane	0.029	0.020	0.005	0.117	0.081	0.020	1
n-Hexane	0.138	0.200	0.033	0.486	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.157	0.100	0.019	0.502	0.319	0.061	1
Carbon tetrachloride	0.085	0.020	0.007	0.535	0.126	0.044	1
Cyclohexane	0.071	0.200	0.030	0.244	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	0.126	0.200	0.027	0.589	0.934	0.126	J 1
Heptane	0.077	0.200	0.032	0.316	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.075	0.500	0.005	0.307	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	1.27	0.050	0.006	4.79	0.188	0.023	1
2-Hexanone	0.034	0.200	0.030	0.139	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.018	0.020	0.008	0.122	0.136	0.054	J 1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-10	Date Collected:	08/09/19 07:50
Client ID:	ELLIOTT LANDING-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.106	0.020	0.007	0.460	0.087	0.030	1
p/m-Xylene	0.243	0.040	0.007	1.06	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.118	0.020	0.007	0.502	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.094	0.020	0.008	0.408	0.087	0.035	1
4-Ethyltoluene	0.016	0.020	0.010	0.079	0.098	0.049	J 1
1,3,5-Trimethylbenzene	0.019	0.020	0.005	0.093	0.098	0.025	J 1
1,2,4-Trimethylbenzene	0.080	0.020	0.007	0.393	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.031	0.050	0.008	0.163	0.262	0.042	J 1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	90		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-11
Client ID: ELLIOTT LANDING-3
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:48
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 00:29
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	0.422	0.500	0.034	0.726	0.861	0.059	J 1
Dichlorodifluoromethane	0.467	0.200	0.011	2.31	0.989	0.055	1
Chloromethane	0.507	0.200	0.048	1.05	0.413	0.099	1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	0.031	0.020	0.007	0.069	0.044	0.016	1
Bromomethane	0.012	0.020	0.008	0.047	0.078	0.031	J 1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Ethanol	72.1	5.00	0.157	136	9.42	0.296	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	22.4	1.00	0.366	53.2	2.38	0.869	1
Trichlorofluoromethane	0.213	0.050	0.011	1.20	0.281	0.064	1
Isopropanol	6.29	0.500	0.153	15.5	1.23	0.376	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	0.067	0.050	0.013	0.514	0.383	0.097	1
trans-1,2-Dichloroethene	0.013	0.020	0.006	0.052	0.079	0.024	J 1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	0.676	0.500	0.016	1.99	1.47	0.047	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-11 Date Collected: 08/09/19 07:48
Client ID: ELLIOTT LANDING-3 Date Received: 08/12/19
Sample Location: BEVERLY, MA Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	2.52	0.500	0.038	9.08	1.80	0.137	1
Chloroform	0.053	0.020	0.005	0.259	0.098	0.024	1
Tetrahydrofuran	0.669	0.500	0.037	1.97	1.47	0.109	1
1,2-Dichloroethane	0.080	0.020	0.005	0.324	0.081	0.020	1
n-Hexane	0.168	0.200	0.033	0.592	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.182	0.100	0.019	0.581	0.319	0.061	1
Carbon tetrachloride	0.091	0.020	0.007	0.572	0.126	0.044	1
Cyclohexane	0.087	0.200	0.030	0.299	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.020	0.020	0.007	0.107	0.107	0.038	1
2,2,4-Trimethylpentane	0.152	0.200	0.027	0.710	0.934	0.126	J 1
Heptane	0.112	0.200	0.032	0.459	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.186	0.500	0.005	0.762	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.601	0.050	0.006	2.26	0.188	0.023	1
2-Hexanone	0.031	0.200	0.030	0.127	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.025	0.020	0.008	0.170	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-11 Date Collected: 08/09/19 07:48
Client ID: ELLIOTT LANDING-3 Date Received: 08/12/19
Sample Location: BEVERLY, MA Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.121	0.020	0.007	0.526	0.087	0.030	1
p/m-Xylene	0.314	0.040	0.007	1.36	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.161	0.020	0.007	0.685	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.118	0.020	0.008	0.513	0.087	0.035	1
4-Ethyltoluene	0.020	0.020	0.010	0.098	0.098	0.049	1
1,3,5-Trimethylbenzene	0.025	0.020	0.005	0.123	0.098	0.025	1
1,2,4-Trimethylbenzene	0.090	0.020	0.007	0.442	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.027	0.050	0.008	0.142	0.262	0.042	J
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	86		60-140
chlorobenzene-d5	89		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-12	Date Collected:	08/09/19 07:30
Client ID:	FIELD DUPLICATE-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 01:08
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	0.323	0.500	0.034	0.556	0.861	0.059	J 1
Dichlorodifluoromethane	0.476	0.200	0.011	2.35	0.989	0.055	1
Chloromethane	0.633	0.200	0.048	1.31	0.413	0.099	1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	0.024	0.020	0.007	0.053	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Ethanol	587	5.00	0.157	1110	9.42	0.296	E 1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	20.3	1.00	0.366	48.2	2.38	0.869	1
Trichlorofluoromethane	0.511	0.050	0.011	2.87	0.281	0.064	1
Isopropanol	180	0.500	0.153	442	1.23	0.376	E 1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	0.458	0.500	0.250	1.59	1.74	0.869	J 1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	0.067	0.050	0.013	0.514	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	0.011	0.020	0.007	0.045	0.081	0.028	J 1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	1.38	0.500	0.016	4.07	1.47	0.047	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-12	Date Collected:	08/09/19 07:30
Client ID:	FIELD DUPLICATE-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.980	0.500	0.038	3.53	1.80	0.137	1
Chloroform	0.109	0.020	0.005	0.532	0.098	0.024	1
Tetrahydrofuran	0.320	0.500	0.037	0.944	1.47	0.109	J 1
1,2-Dichloroethane	0.037	0.020	0.005	0.150	0.081	0.020	1
n-Hexane	0.181	0.200	0.033	0.638	0.705	0.116	J 1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.157	0.100	0.019	0.502	0.319	0.061	1
Carbon tetrachloride	0.087	0.020	0.007	0.547	0.126	0.044	1
Cyclohexane	0.091	0.200	0.030	0.313	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.037	0.020	0.008	0.248	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	0.127	0.200	0.027	0.593	0.934	0.126	J 1
Heptane	1.78	0.200	0.032	7.29	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.250	0.500	0.005	1.02	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.536	0.050	0.006	2.02	0.188	0.023	1
2-Hexanone	0.222	0.200	0.030	0.910	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.022	0.020	0.008	0.149	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-12 Date Collected: 08/09/19 07:30
Client ID: FIELD DUPLICATE-1 Date Received: 08/12/19
Sample Location: BEVERLY, MA Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.164	0.020	0.007	0.712	0.087	0.030	1
p/m-Xylene	0.605	0.040	0.007	2.63	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.105	0.020	0.007	0.447	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.233	0.020	0.008	1.01	0.087	0.035	1
4-Ethyltoluene	0.041	0.020	0.010	0.202	0.098	0.049	1
1,3,5-Trimethylbenzene	0.048	0.020	0.005	0.236	0.098	0.025	1
1,2,4-Trimethylbenzene	0.169	0.020	0.007	0.831	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	0.013	0.020	0.008	0.078	0.120	0.048	J 1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.203	0.050	0.008	1.06	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	86		60-140
chlorobenzene-d5	88		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-12 D
Client ID: FIELD DUPLICATE-1
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:30
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/20/19 08:51
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Ethanol	795	10.0	1.58	1500	18.8	2.98		2
Isopropanol	197	1.00	0.696	484	2.46	1.71		2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	86		60-140
Bromochloromethane	87		60-140
chlorobenzene-d5	87		60-140

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-13	Date Collected:	08/09/19 07:48
Client ID:	FIELD DUPLICATE-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 01:48
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.352	0.500	0.034	0.606	0.861	0.059	J	1
Dichlorodifluoromethane	0.469	0.200	0.011	2.32	0.989	0.055		1
Chloromethane	0.500	0.200	0.048	1.03	0.413	0.099		1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.031	0.020	0.007	0.069	0.044	0.016		1
Bromomethane	0.010	0.020	0.008	0.039	0.078	0.031	J	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045		1
Ethanol	45.6	5.00	0.157	85.9	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	20.4	1.00	0.366	48.5	2.38	0.869		1
Trichlorofluoromethane	0.214	0.050	0.011	1.20	0.281	0.064		1
Isopropanol	5.01	0.500	0.153	12.3	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.975	0.500	0.250	3.39	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196		1
Freon-113	0.066	0.050	0.013	0.506	0.383	0.097		1
trans-1,2-Dichloroethene	0.017	0.020	0.006	0.067	0.079	0.024	J	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.528	0.500	0.016	1.56	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-13	Date Collected:	08/09/19 07:48
Client ID:	FIELD DUPLICATE-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.010	0.020	0.007	0.040	0.079	0.028	J 1
Ethyl Acetate	1.43	0.500	0.038	5.15	1.80	0.137	1
Chloroform	0.054	0.020	0.005	0.264	0.098	0.024	1
Tetrahydrofuran	0.679	0.500	0.037	2.00	1.47	0.109	1
1,2-Dichloroethane	0.086	0.020	0.005	0.348	0.081	0.020	1
n-Hexane	0.212	0.200	0.033	0.747	0.705	0.116	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	0.173	0.100	0.019	0.553	0.319	0.061	1
Carbon tetrachloride	0.085	0.020	0.007	0.535	0.126	0.044	1
Cyclohexane	0.083	0.200	0.030	0.286	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.012	0.020	0.008	0.080	0.134	0.054	J 1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.015	0.020	0.007	0.081	0.107	0.038	J 1
2,2,4-Trimethylpentane	0.145	0.200	0.027	0.677	0.934	0.126	J 1
Heptane	0.109	0.200	0.032	0.447	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.147	0.500	0.005	0.602	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.578	0.050	0.006	2.18	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.027	0.020	0.008	0.183	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-13 Date Collected: 08/09/19 07:48
Client ID: FIELD DUPLICATE-2 Date Received: 08/12/19
Sample Location: BEVERLY, MA Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.111	0.020	0.007	0.482	0.087	0.030	1
p/m-Xylene	0.291	0.040	0.007	1.26	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.120	0.020	0.007	0.511	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.109	0.020	0.008	0.473	0.087	0.035	1
4-Ethyltoluene	0.025	0.020	0.010	0.123	0.098	0.049	1
1,3,5-Trimethylbenzene	0.020	0.020	0.005	0.098	0.098	0.025	1
1,2,4-Trimethylbenzene	0.072	0.020	0.007	0.354	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.016	0.050	0.008	0.084	0.262	0.042	J 1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	86		60-140
chlorobenzene-d5	88		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-14
Client ID: SV-4
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 09:58
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 02:28
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.100	0.500	0.034	0.172	0.861	0.059	J	1
Dichlorodifluoromethane	0.539	0.200	0.011	2.67	0.989	0.055		1
Chloromethane	0.187	0.200	0.048	0.386	0.413	0.099	J	1
Freon-114	0.016	0.050	0.012	0.112	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.044	0.100	0.017	0.116	0.264	0.045	J	1
Ethanol	32.8	5.00	0.157	61.8	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	3.76	1.00	0.366	8.93	2.38	0.869		1
Trichlorofluoromethane	0.507	0.050	0.011	2.85	0.281	0.064		1
Isopropanol	17.8	0.500	0.153	43.8	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.104	0.200	0.063	0.324	0.623	0.196	J	1
Freon-113	0.070	0.050	0.013	0.537	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.323	0.500	0.016	0.953	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-14	Date Collected:	08/10/19 09:58
Client ID:	SV-4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.150	0.500	0.038	0.541	1.80	0.137	J 1
Chloroform	0.080	0.020	0.005	0.391	0.098	0.024	1
Tetrahydrofuran	0.256	0.500	0.037	0.755	1.47	0.109	J 1
1,2-Dichloroethane	0.014	0.020	0.005	0.057	0.081	0.020	J 1
n-Hexane	0.071	0.200	0.033	0.250	0.705	0.116	J 1
1,1,1-Trichloroethane	0.554	0.020	0.006	3.02	0.109	0.033	1
Benzene	0.076	0.100	0.019	0.243	0.319	0.061	J 1
Carbon tetrachloride	0.085	0.020	0.007	0.535	0.126	0.044	1
Cyclohexane	0.071	0.200	0.030	0.244	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.291	0.020	0.007	1.56	0.107	0.038	1
2,2,4-Trimethylpentane	0.040	0.200	0.027	0.187	0.934	0.126	J 1
Heptane	0.123	0.200	0.032	0.504	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.075	0.500	0.005	0.307	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.318	0.050	0.006	1.20	0.188	0.023	1
2-Hexanone	0.042	0.200	0.030	0.172	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.818	0.020	0.008	5.55	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-14	Date Collected:	08/10/19 09:58
Client ID:	SV-4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.171	0.020	0.007	0.743	0.087	0.030	1
p/m-Xylene	0.630	0.040	0.007	2.74	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.067	0.020	0.007	0.285	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.327	0.020	0.008	1.42	0.087	0.035	1
4-Ethyltoluene	0.207	0.020	0.010	1.02	0.098	0.049	1
1,3,5-Trimethylbenzene	0.351	0.020	0.005	1.73	0.098	0.025	1
1,2,4-Trimethylbenzene	0.952	0.020	0.007	4.68	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	0.034	0.020	0.006	0.204	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	1.83	0.050	0.008	9.60	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	85		60-140
chlorobenzene-d5	89		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-15
Client ID: SV-5
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 08:58
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 03:07
Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
Propylene	ND	0.500	0.034	ND	0.861	0.059	1
Dichlorodifluoromethane	0.490	0.200	0.011	2.42	0.989	0.055	1
Chloromethane	0.099	0.200	0.048	0.204	0.413	0.099	J 1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J 1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	0.035	0.100	0.017	0.092	0.264	0.045	J 1
Ethanol	35.2	5.00	0.157	66.3	9.42	0.296	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	4.32	1.00	0.366	10.3	2.38	0.869	1
Trichlorofluoromethane	0.383	0.050	0.011	2.15	0.281	0.064	1
Isopropanol	14.3	0.500	0.153	35.2	1.23	0.376	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	0.167	0.200	0.063	0.520	0.623	0.196	J 1
Freon-113	0.068	0.050	0.013	0.521	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	0.043	0.020	0.007	0.174	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	0.407	0.500	0.016	1.20	1.47	0.047	J 1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-15	Date Collected:	08/10/19 08:58
Client ID:	SV-5	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.101	0.500	0.038	0.364	1.80	0.137	J 1
Chloroform	0.043	0.020	0.005	0.210	0.098	0.024	1
Tetrahydrofuran	1.80	0.500	0.037	5.31	1.47	0.109	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	0.050	0.200	0.033	0.176	0.705	0.116	J 1
1,1,1-Trichloroethane	0.242	0.020	0.006	1.32	0.109	0.033	1
Benzene	0.414	0.100	0.019	1.32	0.319	0.061	1
Carbon tetrachloride	0.061	0.020	0.007	0.384	0.126	0.044	1
Cyclohexane	0.111	0.200	0.030	0.382	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	0.044	0.100	0.014	0.159	0.360	0.051	J 1
Trichloroethene	0.029	0.020	0.007	0.156	0.107	0.038	1
2,2,4-Trimethylpentane	0.030	0.200	0.027	0.140	0.934	0.126	J 1
Heptane	0.092	0.200	0.032	0.377	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.064	0.500	0.005	0.262	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.368	0.050	0.006	1.39	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.340	0.020	0.008	2.31	0.136	0.054	1
Chlorobenzene	0.734	0.100	0.007	3.38	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-15	Date Collected:	08/10/19 08:58
Client ID:	SV-5	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	1.18	0.020	0.007	5.13	0.087	0.030	1
p/m-Xylene	5.92	0.040	0.007	25.7	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.722	0.020	0.007	3.07	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	4.55	0.020	0.008	19.8	0.087	0.035	1
4-Ethyltoluene	0.047	0.020	0.010	0.231	0.098	0.049	1
1,3,5-Trimethylbenzene	0.053	0.020	0.005	0.261	0.098	0.025	1
1,2,4-Trimethylbenzene	0.213	0.020	0.007	1.05	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	0.032	0.020	0.006	0.192	0.120	0.036	1
1,4-Dichlorobenzene	0.039	0.020	0.008	0.234	0.120	0.048	1
1,2-Dichlorobenzene	0.077	0.020	0.006	0.463	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.199	0.050	0.008	1.04	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	86		60-140
chlorobenzene-d5	97		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-16
Client ID: SV-6
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 09:10
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 03:46
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.761	0.500	0.034	1.31	0.861	0.059		1
Dichlorodifluoromethane	0.486	0.200	0.011	2.40	0.989	0.055		1
Chloromethane	0.492	0.200	0.048	1.02	0.413	0.099		1
Freon-114	0.015	0.050	0.012	0.105	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.023	0.020	0.007	0.051	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.100	0.100	0.017	0.264	0.264	0.045		1
Ethanol	179	5.00	0.157	337	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	16.6	1.00	0.366	39.4	2.38	0.869		1
Trichlorofluoromethane	0.503	0.050	0.011	2.83	0.281	0.064		1
Isopropanol	88.4	0.500	0.153	217	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	0.460	0.500	0.250	1.60	1.74	0.869	J	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.123	0.200	0.063	0.383	0.623	0.196	J	1
Freon-113	0.070	0.050	0.013	0.537	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	0.115	0.020	0.007	0.465	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	1.21	0.500	0.016	3.57	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-16	Date Collected:	08/10/19 09:10
Client ID:	SV-6	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.020	0.020	0.007	0.079	0.079	0.028	1
Ethyl Acetate	0.405	0.500	0.038	1.46	1.80	0.137	J 1
Chloroform	0.248	0.020	0.005	1.21	0.098	0.024	1
Tetrahydrofuran	1.86	0.500	0.037	5.49	1.47	0.109	1
1,2-Dichloroethane	0.043	0.020	0.005	0.174	0.081	0.020	1
n-Hexane	0.271	0.200	0.033	0.955	0.705	0.116	1
1,1,1-Trichloroethane	0.761	0.020	0.006	4.15	0.109	0.033	1
Benzene	0.548	0.100	0.019	1.75	0.319	0.061	1
Carbon tetrachloride	0.257	0.020	0.007	1.62	0.126	0.044	1
Cyclohexane	0.134	0.200	0.030	0.461	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	0.050	0.100	0.014	0.180	0.360	0.051	J 1
Trichloroethene	1.70	0.020	0.007	9.14	0.107	0.038	1
2,2,4-Trimethylpentane	0.103	0.200	0.027	0.481	0.934	0.126	J 1
Heptane	0.705	0.200	0.032	2.89	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.262	0.500	0.005	1.07	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	1.01	0.050	0.006	3.81	0.188	0.023	1
2-Hexanone	0.178	0.200	0.030	0.729	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.191	0.020	0.008	1.30	0.136	0.054	1
Chlorobenzene	0.960	0.100	0.007	4.42	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-16	Date Collected:	08/10/19 09:10
Client ID:	SV-6	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	1.95	0.020	0.007	8.47	0.087	0.030	1
p/m-Xylene	8.41	0.040	0.007	36.5	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	1.30	0.020	0.007	5.53	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	5.74	0.020	0.008	24.9	0.087	0.035	1
4-Ethyltoluene	0.339	0.020	0.010	1.67	0.098	0.049	1
1,3,5-Trimethylbenzene	1.06	0.020	0.005	5.21	0.098	0.025	1
1,2,4-Trimethylbenzene	1.63	0.020	0.007	8.01	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	0.138	0.020	0.008	0.830	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	19.1	0.050	0.008	100	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	97		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-17
Client ID: SV-7
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 09:53
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 06:00
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.097	0.500	0.034	0.167	0.861	0.059	J	1
Dichlorodifluoromethane	0.443	0.200	0.011	2.19	0.989	0.055		1
Chloromethane	0.130	0.200	0.048	0.268	0.413	0.099	J	1
Freon-114	0.014	0.050	0.012	0.098	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.027	0.100	0.017	0.071	0.264	0.045	J	1
Ethanol	66.0	5.00	0.157	124	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	3.97	1.00	0.366	9.43	2.38	0.869		1
Trichlorofluoromethane	0.402	0.050	0.011	2.26	0.281	0.064		1
Isopropanol	24.8	0.500	0.153	61.0	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196		1
Freon-113	0.058	0.050	0.013	0.445	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	0.155	0.020	0.007	0.627	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.305	0.500	0.016	0.900	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-17	Date Collected:	08/10/19 09:53
Client ID:	SV-7	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.124	0.500	0.038	0.447	1.80	0.137	J 1
Chloroform	0.051	0.020	0.005	0.249	0.098	0.024	1
Tetrahydrofuran	0.281	0.500	0.037	0.829	1.47	0.109	J 1
1,2-Dichloroethane	0.015	0.020	0.005	0.061	0.081	0.020	J 1
n-Hexane	0.051	0.200	0.033	0.180	0.705	0.116	J 1
1,1,1-Trichloroethane	0.304	0.020	0.006	1.66	0.109	0.033	1
Benzene	0.048	0.100	0.019	0.153	0.319	0.061	J 1
Carbon tetrachloride	0.057	0.020	0.007	0.359	0.126	0.044	1
Cyclohexane	0.091	0.200	0.030	0.313	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.023	0.020	0.007	0.124	0.107	0.038	1
2,2,4-Trimethylpentane	ND	0.200	0.027	ND	0.934	0.126	1
Heptane	0.073	0.200	0.032	0.299	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.071	0.500	0.005	0.291	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.159	0.050	0.006	0.599	0.188	0.023	1
2-Hexanone	0.045	0.200	0.030	0.184	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.333	0.020	0.008	2.26	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-17	Date Collected:	08/10/19 09:53
Client ID:	SV-7	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.048	0.020	0.007	0.208	0.087	0.030	1
p/m-Xylene	0.163	0.040	0.007	0.708	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.031	0.020	0.007	0.132	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.067	0.020	0.008	0.291	0.087	0.035	1
4-Ethyltoluene	0.022	0.020	0.010	0.108	0.098	0.049	1
1,3,5-Trimethylbenzene	0.032	0.020	0.005	0.157	0.098	0.025	1
1,2,4-Trimethylbenzene	0.097	0.020	0.007	0.477	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.229	0.050	0.008	1.20	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	99		60-140
chlorobenzene-d5	94		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-18
Client ID: SG-1
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 08:50
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 06:39
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.064	0.500	0.034	0.110	0.861	0.059	J	1
Dichlorodifluoromethane	0.461	0.200	0.011	2.28	0.989	0.055		1
Chloromethane	0.158	0.200	0.048	0.326	0.413	0.099	J	1
Freon-114	0.037	0.050	0.012	0.259	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.021	0.100	0.017	0.055	0.264	0.045	J	1
Ethanol	7.50	5.00	0.157	14.1	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	2.27	1.00	0.366	5.39	2.38	0.869		1
Trichlorofluoromethane	1.54	0.050	0.011	8.65	0.281	0.064		1
Isopropanol	0.810	0.500	0.153	1.99	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.289	0.200	0.063	0.900	0.623	0.196		1
Freon-113	0.073	0.050	0.013	0.560	0.383	0.097		1
trans-1,2-Dichloroethene	0.037	0.020	0.006	0.147	0.079	0.024		1
1,1-Dichloroethane	0.018	0.020	0.007	0.073	0.081	0.028	J	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.307	0.500	0.016	0.905	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-18	Date Collected:	08/10/19 08:50
Client ID:	SG-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.107	0.020	0.007	0.424	0.079	0.028	1
Ethyl Acetate	0.080	0.500	0.038	0.288	1.80	0.137	J 1
Chloroform	0.256	0.020	0.005	1.25	0.098	0.024	1
Tetrahydrofuran	0.433	0.500	0.037	1.28	1.47	0.109	J 1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	ND	0.200	0.033	ND	0.705	0.116	1
1,1,1-Trichloroethane	0.103	0.020	0.006	0.562	0.109	0.033	1
Benzene	0.059	0.100	0.019	0.188	0.319	0.061	J 1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
Cyclohexane	ND	0.200	0.030	ND	0.688	0.103	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	1.97	0.020	0.007	10.6	0.107	0.038	1
2,2,4-Trimethylpentane	ND	0.200	0.027	ND	0.934	0.126	1
Heptane	0.084	0.200	0.032	0.344	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.069	0.500	0.005	0.283	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.334	0.050	0.006	1.26	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.516	0.020	0.008	3.50	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-18	Date Collected:	08/10/19 08:50
Client ID:	SG-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.087	0.020	0.007	0.378	0.087	0.030	1
p/m-Xylene	0.231	0.040	0.007	1.00	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.172	0.020	0.007	0.732	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.078	0.020	0.008	0.339	0.087	0.035	1
4-Ethyltoluene	0.020	0.020	0.010	0.098	0.098	0.049	1
1,3,5-Trimethylbenzene	0.024	0.020	0.005	0.118	0.098	0.025	1
1,2,4-Trimethylbenzene	0.106	0.020	0.007	0.521	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.175	0.050	0.008	0.918	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	92		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-19
Client ID: SG-2
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 10:54
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 07:19
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.042	0.500	0.034	0.072	0.861	0.059	J	1
Dichlorodifluoromethane	0.475	0.200	0.011	2.35	0.989	0.055		1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099		1
Freon-114	0.085	0.050	0.012	0.594	0.349	0.081		1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.026	0.100	0.017	0.069	0.264	0.045	J	1
Ethanol	1.92	5.00	0.157	3.62	9.42	0.296	J	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	1.22	1.00	0.366	2.90	2.38	0.869		1
Trichlorofluoromethane	0.898	0.050	0.011	5.05	0.281	0.064		1
Isopropanol	0.483	0.500	0.153	1.19	1.23	0.376	J	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	0.158	0.200	0.063	0.492	0.623	0.196	J	1
Freon-113	0.070	0.050	0.013	0.537	0.383	0.097		1
trans-1,2-Dichloroethene	0.019	0.020	0.006	0.075	0.079	0.024	J	1
1,1-Dichloroethane	0.098	0.020	0.007	0.397	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.142	0.500	0.016	0.419	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-19	Date Collected:	08/10/19 10:54
Client ID:	SG-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.022	0.020	0.007	0.087	0.079	0.028	1
Ethyl Acetate	0.039	0.500	0.038	0.141	1.80	0.137	J 1
Chloroform	0.334	0.020	0.005	1.63	0.098	0.024	1
Tetrahydrofuran	0.207	0.500	0.037	0.611	1.47	0.109	J 1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	ND	0.200	0.033	ND	0.705	0.116	1
1,1,1-Trichloroethane	0.415	0.020	0.006	2.26	0.109	0.033	1
Benzene	0.041	0.100	0.019	0.131	0.319	0.061	J 1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
Cyclohexane	ND	0.200	0.030	ND	0.688	0.103	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	0.037	0.100	0.014	0.133	0.360	0.051	J 1
Trichloroethene	0.746	0.020	0.007	4.01	0.107	0.038	1
2,2,4-Trimethylpentane	ND	0.200	0.027	ND	0.934	0.126	1
Heptane	ND	0.200	0.032	ND	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.033	0.500	0.005	0.135	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.064	0.050	0.006	0.241	0.188	0.023	1
2-Hexanone	0.030	0.200	0.030	0.123	0.820	0.123	J 1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.456	0.020	0.008	3.09	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-19	Date Collected:	08/10/19 10:54
Client ID:	SG-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.020	0.020	0.007	0.087	0.087	0.030	1
p/m-Xylene	0.075	0.040	0.007	0.326	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.021	0.020	0.007	0.089	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.033	0.020	0.008	0.143	0.087	0.035	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049	1
1,3,5-Trimethylbenzene	0.011	0.020	0.005	0.054	0.098	0.025	J 1
1,2,4-Trimethylbenzene	0.040	0.020	0.007	0.197	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.115	0.050	0.008	0.603	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	89		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-20
Client ID: SG-3
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 11:04
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/20/19 07:58
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	3.12	0.500	0.034	5.37	0.861	0.059		1
Dichlorodifluoromethane	0.544	0.200	0.011	2.69	0.989	0.055		1
Chloromethane	1.40	0.200	0.048	2.89	0.413	0.099		1
Freon-114	0.024	0.050	0.012	0.168	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	0.020	0.020	0.007	0.044	0.044	0.016		1
Bromomethane	0.063	0.020	0.008	0.245	0.078	0.031		1
Chloroethane	0.730	0.100	0.017	1.93	0.264	0.045		1
Ethanol	7.13	5.00	0.157	13.4	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	7.02	1.00	0.366	16.7	2.38	0.869		1
Trichlorofluoromethane	0.720	0.050	0.011	4.05	0.281	0.064		1
Isopropanol	1.10	0.500	0.153	2.70	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	1.92	0.200	0.063	5.98	0.623	0.196		1
Freon-113	0.072	0.050	0.013	0.552	0.383	0.097		1
trans-1,2-Dichloroethene	0.177	0.020	0.006	0.702	0.079	0.024		1
1,1-Dichloroethane	0.150	0.020	0.007	0.607	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.906	0.500	0.016	2.67	1.47	0.047		1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-20	Date Collected:	08/10/19 11:04
Client ID:	SG-3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	0.655	0.020	0.007	2.60	0.079	0.028	1
Ethyl Acetate	0.275	0.500	0.038	0.991	1.80	0.137	J 1
Chloroform	4.93	0.020	0.005	24.1	0.098	0.024	1
Tetrahydrofuran	0.861	0.500	0.037	2.54	1.47	0.109	1
1,2-Dichloroethane	0.060	0.020	0.005	0.243	0.081	0.020	1
n-Hexane	0.651	0.200	0.033	2.29	0.705	0.116	1
1,1,1-Trichloroethane	0.629	0.020	0.006	3.43	0.109	0.033	1
Benzene	0.232	0.100	0.019	0.741	0.319	0.061	1
Carbon tetrachloride	0.044	0.020	0.007	0.277	0.126	0.044	1
Cyclohexane	0.126	0.200	0.030	0.434	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	0.036	0.020	0.008	0.241	0.134	0.054	1
1,4-Dioxane	0.045	0.100	0.014	0.162	0.360	0.051	J 1
Trichloroethene	2.28	0.020	0.007	12.3	0.107	0.038	1
2,2,4-Trimethylpentane	0.045	0.200	0.027	0.210	0.934	0.126	J 1
Heptane	0.193	0.200	0.032	0.791	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.100	0.500	0.005	0.410	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.505	0.050	0.006	1.90	0.188	0.023	1
2-Hexanone	0.061	0.200	0.030	0.250	0.820	0.123	J 1
Dibromochloromethane	0.013	0.020	0.008	0.111	0.170	0.068	J 1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	2.55	0.020	0.008	17.3	0.136	0.054	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-20	Date Collected:	08/10/19 11:04
Client ID:	SG-3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.154	0.020	0.007	0.669	0.087	0.030	1
p/m-Xylene	0.414	0.040	0.007	1.80	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.133	0.020	0.007	0.566	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	0.172	0.020	0.008	0.747	0.087	0.035	1
4-Ethyltoluene	0.041	0.020	0.010	0.202	0.098	0.049	1
1,3,5-Trimethylbenzene	0.068	0.020	0.005	0.334	0.098	0.025	1
1,2,4-Trimethylbenzene	0.193	0.020	0.007	0.949	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
1,2-Dichlorobenzene	0.019	0.020	0.006	0.114	0.120	0.036	J 1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.111	0.050	0.008	0.582	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	90		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-21	Date Collected:	08/10/19 08:58
Client ID:	SG FIELD DUPLICATE	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 23:22
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Propylene	0.055	0.500	0.034	0.095	0.861	0.059	J	1
Dichlorodifluoromethane	0.467	0.200	0.011	2.31	0.989	0.055		1
Chloromethane	0.115	0.200	0.048	0.237	0.413	0.099	J	1
Freon-114	0.018	0.050	0.012	0.126	0.349	0.081	J	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015		1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016		1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031		1
Chloroethane	0.036	0.100	0.017	0.095	0.264	0.045	J	1
Ethanol	32.8	5.00	0.157	61.8	9.42	0.296		1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101		1
Acetone	4.45	1.00	0.366	10.6	2.38	0.869		1
Trichlorofluoromethane	0.346	0.050	0.011	1.94	0.281	0.064		1
Isopropanol	13.5	0.500	0.153	33.2	1.23	0.376		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869		1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063		1
Carbon disulfide	1.26	0.200	0.063	3.92	0.623	0.196		1
Freon-113	0.068	0.050	0.013	0.521	0.383	0.097		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	0.053	0.020	0.007	0.215	0.081	0.028		1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022		1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095		1
2-Butanone	0.440	0.500	0.016	1.30	1.47	0.047	J	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-21	Date Collected:	08/10/19 08:58
Client ID:	SG FIELD DUPLICATE	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	0.125	0.500	0.038	0.450	1.80	0.137	J 1
Chloroform	0.052	0.020	0.005	0.254	0.098	0.024	1
Tetrahydrofuran	1.73	0.500	0.037	5.10	1.47	0.109	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	0.051	0.200	0.033	0.180	0.705	0.116	J 1
1,1,1-Trichloroethane	0.210	0.020	0.006	1.15	0.109	0.033	1
Benzene	0.465	0.100	0.019	1.49	0.319	0.061	1
Carbon tetrachloride	0.059	0.020	0.007	0.371	0.126	0.044	1
Cyclohexane	0.070	0.200	0.030	0.241	0.688	0.103	J 1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	0.022	0.020	0.007	0.118	0.107	0.038	1
2,2,4-Trimethylpentane	0.027	0.200	0.027	0.126	0.934	0.126	J 1
Heptane	0.085	0.200	0.032	0.348	0.820	0.131	J 1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.078	0.500	0.005	0.320	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.267	0.050	0.006	1.01	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	0.266	0.020	0.008	1.80	0.136	0.054	1
Chlorobenzene	0.616	0.100	0.007	2.84	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-21	Date Collected:	08/10/19 08:58
Client ID:	SG FIELD DUPLICATE	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Ethylbenzene	0.935	0.020	0.007	4.06	0.087	0.030	1
p/m-Xylene	5.29	0.040	0.007	23.0	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	0.577	0.020	0.007	2.46	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	3.91	0.020	0.008	17.0	0.087	0.035	1
4-Ethyltoluene	0.038	0.020	0.010	0.187	0.098	0.049	1
1,3,5-Trimethylbenzene	0.041	0.020	0.005	0.202	0.098	0.025	1
1,2,4-Trimethylbenzene	0.185	0.020	0.007	0.909	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	0.016	0.020	0.008	0.096	0.120	0.048	J 1
1,2-Dichlorobenzene	0.052	0.020	0.006	0.313	0.120	0.036	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	0.180	0.050	0.008	0.944	0.262	0.042	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	80		60-140
bromochloromethane	82		60-140
chlorobenzene-d5	90		60-140



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 15:41

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-20 Batch: WG1274119-4							
Propylene	ND	0.500	0.034	ND	0.861	0.059	1
Dichlorodifluoromethane	ND	0.200	0.011	ND	0.989	0.055	1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099	1
Freon-114	ND	0.050	0.012	ND	0.349	0.081	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Ethanol	ND	5.00	0.157	ND	9.42	0.296	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	ND	1.00	0.366	ND	2.38	0.869	1
Trichlorofluoromethane	ND	0.050	0.011	ND	0.281	0.064	1
Isopropanol	ND	0.500	0.153	ND	1.23	0.376	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	ND	0.050	0.013	ND	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	ND	0.500	0.016	ND	1.47	0.047	1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	ND	0.500	0.038	ND	1.80	0.137	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 15:41

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-20 Batch: WG1274119-4							
Chloroform	ND	0.020	0.005	ND	0.098	0.024	1
Tetrahydrofuran	ND	0.500	0.037	ND	1.47	0.109	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	ND	0.200	0.033	ND	0.705	0.116	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	ND	0.100	0.019	ND	0.319	0.061	1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
Cyclohexane	ND	0.200	0.030	ND	0.688	0.103	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	ND	0.200	0.027	ND	0.934	0.126	1
Heptane	ND	0.200	0.032	ND	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	ND	0.500	0.005	ND	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	0.014	0.050	0.006	0.053	0.188	0.023	J 1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054	1
1,1,1,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.041	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 15:41

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-20 Batch: WG1274119-4								
Ethylbenzene	ND	0.020	0.007	ND	0.087	0.030		1
p/m-Xylene	0.025	0.040	0.007	0.109	0.174	0.030	J	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155		1
Styrene	ND	0.020	0.007	ND	0.085	0.030		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048		1
o-Xylene	0.011	0.020	0.008	0.048	0.087	0.035	J	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethylbenzene	ND	0.020	0.005	ND	0.098	0.025		1
1,2,4-Trimethylbenzene	ND	0.020	0.007	ND	0.098	0.034		1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,2,4-Trichlorobenzene	0.028	0.050	0.010	0.208	0.371	0.074	J	1
Naphthalene	0.037	0.050	0.008	0.194	0.262	0.042	J	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075		1



Project Name: CUMMINGS BEVERLY

Lab Number: L1936134

Project Number: CUMMINGS BEVERLY

Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 08/19/19 15:35

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 21 Batch: WG1274126-4							
Propylene	ND	0.500	0.034	ND	0.861	0.059	1
Dichlorodifluoromethane	ND	0.200	0.011	ND	0.989	0.055	1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099	1
Freon-114	ND	0.050	0.012	ND	0.349	0.081	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Ethanol	ND	5.00	0.157	ND	9.42	0.296	1
Vinyl bromide	ND	0.200	0.023	ND	0.874	0.101	1
Acetone	ND	1.00	0.366	ND	2.38	0.869	1
Trichlorofluoromethane	ND	0.050	0.011	ND	0.281	0.064	1
Isopropanol	ND	0.500	0.153	ND	1.23	0.376	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
3-Chloropropene	ND	0.200	0.020	ND	0.626	0.063	1
Carbon disulfide	ND	0.200	0.063	ND	0.623	0.196	1
Freon-113	ND	0.050	0.013	ND	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
Vinyl acetate	ND	1.00	0.027	ND	3.52	0.095	1
2-Butanone	0.022	0.500	0.016	0.065	1.47	0.047	J
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Ethyl Acetate	ND	0.500	0.038	ND	1.80	0.137	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 15:35

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 21 Batch: WG1274126-4							
Chloroform	ND	0.020	0.005	ND	0.098	0.024	1
Tetrahydrofuran	ND	0.500	0.037	ND	1.47	0.109	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
n-Hexane	ND	0.200	0.033	ND	0.705	0.116	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	ND	0.100	0.019	ND	0.319	0.061	1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
Cyclohexane	ND	0.200	0.030	ND	0.688	0.103	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
2,2,4-Trimethylpentane	ND	0.200	0.027	ND	0.934	0.126	1
Heptane	ND	0.200	0.032	ND	0.820	0.131	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	0.017	0.500	0.005	0.070	2.05	0.021	J 1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	ND	0.050	0.006	ND	0.188	0.023	1
2-Hexanone	ND	0.200	0.030	ND	0.820	0.123	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054	1
1,1,1,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.041	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 08/19/19 15:35

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 21 Batch: WG1274126-4								
Ethylbenzene	ND	0.020	0.007	ND	0.087	0.030		1
p/m-Xylene	0.016	0.040	0.007	0.070	0.174	0.030	J	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155		1
Styrene	ND	0.020	0.007	ND	0.085	0.030		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048		1
o-Xylene	ND	0.020	0.008	ND	0.087	0.035		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethylbenzene	ND	0.020	0.005	ND	0.098	0.025		1
1,2,4-Trimethylbenzene	ND	0.020	0.007	ND	0.098	0.034		1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036		1
1,2,4-Trichlorobenzene	0.015	0.050	0.010	0.111	0.371	0.074	J	1
Naphthalene	0.014	0.050	0.008	0.073	0.262	0.042	J	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075		1



Project Name: CUMMINGS BEVERLY

Lab Number: L1936134

Project Number: CUMMINGS BEVERLY

Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 08/19/19 14:41

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1274355-4							
Ethanol	ND	5.00	0.788	ND	9.42	1.48	1
Isopropanol	ND	0.500	0.348	ND	1.23	0.855	1



Project Name: CUMMINGS BEVERLY

Lab Number: L1936134

Project Number: CUMMINGS BEVERLY

Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 08/19/19 15:02

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	
Volatile Organics in Air - Mansfield Lab for sample(s): 05-07,12 Batch: WG1274468-4							
Ethanol	ND	5.00	0.788	ND	9.42	1.48	1
Isopropanol	ND	0.500	0.348	ND	1.23	0.855	1



Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 Batch: WG1274119-3								
Propylene	102		-		70-130	-		25
Dichlorodifluoromethane	92		-		70-130	-		25
Chloromethane	89		-		70-130	-		25
Freon-114	92		-		70-130	-		25
Vinyl chloride	89		-		70-130	-		25
1,3-Butadiene	97		-		70-130	-		25
Bromomethane	90		-		70-130	-		25
Chloroethane	87		-		70-130	-		25
Ethanol	90		-		40-160	-		25
Vinyl bromide	95		-		70-130	-		25
Acetone	71		-		40-160	-		25
Trichlorofluoromethane	89		-		70-130	-		25
Isopropanol	80		-		40-160	-		25
1,1-Dichloroethene	88		-		70-130	-		25
Methylene chloride	94		-		70-130	-		25
3-Chloropropene	94		-		70-130	-		25
Carbon disulfide	89		-		70-130	-		25
Freon-113	92		-		70-130	-		25
trans-1,2-Dichloroethene	89		-		70-130	-		25
1,1-Dichloroethane	89		-		70-130	-		25
Methyl tert butyl ether	90		-		70-130	-		25
Vinyl acetate	94		-		70-130	-		25
2-Butanone	87		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 Batch: WG1274119-3								
cis-1,2-Dichloroethene	95		-		70-130	-		25
Ethyl Acetate	106		-		70-130	-		25
Chloroform	102		-		70-130	-		25
Tetrahydrofuran	94		-		70-130	-		25
1,2-Dichloroethane	91		-		70-130	-		25
n-Hexane	100		-		70-130	-		25
1,1,1-Trichloroethane	103		-		70-130	-		25
Benzene	96		-		70-130	-		25
Carbon tetrachloride	119		-		70-130	-		25
Cyclohexane	100		-		70-130	-		25
1,2-Dichloropropane	97		-		70-130	-		25
Bromodichloromethane	105		-		70-130	-		25
1,4-Dioxane	104		-		70-130	-		25
Trichloroethene	101		-		70-130	-		25
2,2,4-Trimethylpentane	105		-		70-130	-		25
cis-1,3-Dichloropropene	99		-		70-130	-		25
4-Methyl-2-pentanone	103		-		70-130	-		25
trans-1,3-Dichloropropene	111		-		70-130	-		25
1,1,2-Trichloroethane	100		-		70-130	-		25
Toluene	94		-		70-130	-		25
2-Hexanone	107		-		70-130	-		25
Dibromochloromethane	141	Q	-		70-130	-		25
1,2-Dibromoethane	114		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 Batch: WG1274119-3								
Tetrachloroethene	109		-		70-130	-		25
1,1,1,2-Tetrachloroethane	128		-		70-130	-		25
Chlorobenzene	112		-		70-130	-		25
Ethylbenzene	107		-		70-130	-		25
p/m-Xylene	100		-		70-130	-		25
Bromoform	154	Q	-		70-130	-		25
Styrene	116		-		70-130	-		25
1,1,2,2-Tetrachloroethane	119		-		70-130	-		25
o-Xylene	107		-		70-130	-		25
4-Ethyltoluene	117		-		70-130	-		25
1,3,5-Trimethylbenzene	120		-		70-130	-		25
1,2,4-Trimethylbenzene	122		-		70-130	-		25
Benzyl chloride	122		-		70-130	-		25
1,3-Dichlorobenzene	119		-		70-130	-		25
1,4-Dichlorobenzene	115		-		70-130	-		25
1,2-Dichlorobenzene	121		-		70-130	-		25
1,2,4-Trichlorobenzene	89		-		70-130	-		25
Naphthalene	95		-		70-130	-		25
Hexachlorobutadiene	131	Q	-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 21 Batch: WG1274126-3								
Propylene	118		-		70-130	-		25
Dichlorodifluoromethane	100		-		70-130	-		25
Chloromethane	103		-		70-130	-		25
Freon-114	116		-		70-130	-		25
Vinyl chloride	120		-		70-130	-		25
1,3-Butadiene	117		-		70-130	-		25
Bromomethane	106		-		70-130	-		25
Chloroethane	114		-		70-130	-		25
Ethanol	94		-		40-160	-		25
Vinyl bromide	99		-		70-130	-		25
Acetone	80		-		40-160	-		25
Trichlorofluoromethane	85		-		70-130	-		25
Isopropanol	85		-		40-160	-		25
1,1-Dichloroethene	110		-		70-130	-		25
Methylene chloride	100		-		70-130	-		25
3-Chloropropene	119		-		70-130	-		25
Carbon disulfide	114		-		70-130	-		25
Freon-113	103		-		70-130	-		25
trans-1,2-Dichloroethene	107		-		70-130	-		25
1,1-Dichloroethane	112		-		70-130	-		25
Methyl tert butyl ether	96		-		70-130	-		25
Vinyl acetate	103		-		70-130	-		25
2-Butanone	102		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 21 Batch: WG1274126-3								
cis-1,2-Dichloroethene	112		-		70-130	-		25
Ethyl Acetate	123		-		70-130	-		25
Chloroform	106		-		70-130	-		25
Tetrahydrofuran	92		-		70-130	-		25
1,2-Dichloroethane	95		-		70-130	-		25
n-Hexane	111		-		70-130	-		25
1,1,1-Trichloroethane	85		-		70-130	-		25
Benzene	96		-		70-130	-		25
Carbon tetrachloride	95		-		70-130	-		25
Cyclohexane	103		-		70-130	-		25
1,2-Dichloropropane	100		-		70-130	-		25
Bromodichloromethane	95		-		70-130	-		25
1,4-Dioxane	95		-		70-130	-		25
Trichloroethene	88		-		70-130	-		25
2,2,4-Trimethylpentane	115		-		70-130	-		25
cis-1,3-Dichloropropene	86		-		70-130	-		25
4-Methyl-2-pentanone	98		-		70-130	-		25
trans-1,3-Dichloropropene	104		-		70-130	-		25
1,1,2-Trichloroethane	92		-		70-130	-		25
Toluene	76		-		70-130	-		25
2-Hexanone	84		-		70-130	-		25
Dibromochloromethane	93		-		70-130	-		25
1,2-Dibromoethane	82		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 21 Batch: WG1274126-3								
Tetrachloroethene	86		-		70-130	-		25
1,1,1,2-Tetrachloroethane	83		-		70-130	-		25
Chlorobenzene	85		-		70-130	-		25
Ethylbenzene	82		-		70-130	-		25
p/m-Xylene	83		-		70-130	-		25
Bromoform	111		-		70-130	-		25
Styrene	82		-		70-130	-		25
1,1,2,2-Tetrachloroethane	93		-		70-130	-		25
o-Xylene	88		-		70-130	-		25
4-Ethyltoluene	89		-		70-130	-		25
1,3,5-Trimethylbenzene	91		-		70-130	-		25
1,2,4-Trimethylbenzene	98		-		70-130	-		25
Benzyl chloride	93		-		70-130	-		25
1,3-Dichlorobenzene	103		-		70-130	-		25
1,4-Dichlorobenzene	98		-		70-130	-		25
1,2-Dichlorobenzene	98		-		70-130	-		25
1,2,4-Trichlorobenzene	104		-		70-130	-		25
Naphthalene	78		-		70-130	-		25
Hexachlorobutadiene	107		-		70-130	-		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1274355-3								
Ethanol	74		-		40-160	-		
Isopropanol	76		-		40-160	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	<i>LCS</i> <i>%Recovery</i>	<i>Qual</i>	<i>LCSD</i> <i>%Recovery</i>	<i>Qual</i>	<i>%Recovery</i> <i>Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> <i>Limits</i>
Volatile Organics in Air - Mansfield Lab Associated sample(s): 05-07,12 Batch: WG1274468-3								
Ethanol	92		-		40-160	-		
Isopropanol	86		-		40-160	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274119-5 QC Sample: L1936134-04 Client ID: S-140A.1						
Propylene	2.21	2.14	ppbV	3		25
Dichlorodifluoromethane	1.53	1.53	ppbV	0		25
Chloromethane	0.548	0.545	ppbV	1		25
Freon-114	0.015J	0.015J	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	0.045	0.045	ppbV	0		25
Bromomethane	ND	0.012J	ppbV	NC		25
Chloroethane	0.068J	0.074J	ppbV	NC		25
Ethanol	130	135	ppbV	4		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	21.0	21.2	ppbV	1		25
Trichlorofluoromethane	0.688	0.687	ppbV	0		25
Isopropanol	252E	250E	ppbV	1		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Methylene chloride	0.840	0.832	ppbV	1		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	0.075J	0.073J	ppbV	NC		25
Freon-113	0.067	0.066	ppbV	2		25
trans-1,2-Dichloroethene	0.025	0.025	ppbV	0		25
1,1-Dichloroethane	0.010J	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274119-5 QC Sample: L1936134-04 Client ID: S-140A.1						
Vinyl acetate	ND	ND	ppbV	NC		25
2-Butanone	1.52	1.52	ppbV	0		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Ethyl Acetate	1.59	1.59	ppbV	0		25
Chloroform	0.216	0.220	ppbV	2		25
Tetrahydrofuran	0.815	0.829	ppbV	2		25
1,2-Dichloroethane	0.035	0.042	ppbV	18		25
n-Hexane	1.01	1.00	ppbV	1		25
1,1,1-Trichloroethane	0.038	0.038	ppbV	0		25
Benzene	0.134	0.133	ppbV	1		25
Carbon tetrachloride	0.086	0.078	ppbV	10		25
Cyclohexane	0.222	0.223	ppbV	0		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	0.019J	0.024	ppbV	NC		25
1,4-Dioxane	0.073J	0.067J	ppbV	NC		25
Trichloroethene	0.024	0.018J	ppbV	NC		25
2,2,4-Trimethylpentane	0.145J	0.144J	ppbV	NC		25
Heptane	0.362	0.360	ppbV	1		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	0.962	0.961	ppbV	0		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274119-5 QC Sample: L1936134-04 Client ID: S-140A.1						
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25
Toluene	1.97	2.01	ppbV	2		25
2-Hexanone	0.125J	0.121J	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Tetrachloroethene	0.685	0.693	ppbV	1		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	0.490	0.497	ppbV	1		25
p/m-Xylene	1.63	1.65	ppbV	1		25
Bromoform	ND	ND	ppbV	NC		25
Styrene	0.379	0.389	ppbV	3		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	1.08	1.09	ppbV	1		25
4-Ethyltoluene	3.15	3.09	ppbV	2		25
1,3,5-Trimethylbenzene	3.95	4.01	ppbV	2		25
1,2,4-Trimethylbenzene	12.7	12.9	ppbV	2		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274119-5 QC Sample: L1936134-04 Client ID: S-140A.1						
Naphthalene	0.131	0.119	ppbV	10		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274119-5 QC Sample: L1936134-04 Client ID: S-140A.1						
Isopropanol	290	292	ppbV	1		25

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-01	Date Collected:	08/09/19 07:30
Client ID:	S-135C.1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 17:13
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	65		ug/m3	10	10.	1
Toluene	2.2		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	2.7		ug/m3	0.90	0.90	1
o-Xylene	1.0		ug/m3	0.90	0.90	1
Naphthalene	1.7		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	39		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		50-200
Bromochloromethane	92		50-200
Chlorobenzene-d5	95		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-02	Date Collected:	08/09/19 07:28
Client ID:	S-135C.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 17:53
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	50		ug/m3	10	10.	1
Toluene	2.4		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	2.5		ug/m3	0.90	0.90	1
o-Xylene	0.93		ug/m3	0.90	0.90	1
Naphthalene	2.4		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	44		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		50-200
Bromochloromethane	97		50-200
Chlorobenzene-d5	95		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-03	Date Collected:	08/09/19 07:27
Client ID:	S-135C.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 18:32
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	68		ug/m3	10	10.	1
Toluene	2.4		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	2.8		ug/m3	0.90	0.90	1
o-Xylene	1.0		ug/m3	0.90	0.90	1
Naphthalene	3.4		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	58		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		50-200
Bromochloromethane	98		50-200
Chlorobenzene-d5	97		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-04
Client ID: S-140A.1
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:01
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 19:11
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	250		ug/m3	10	10.	1
Toluene	8.0		ug/m3	0.90	0.90	1
Ethylbenzene	2.1		ug/m3	0.90	0.90	1
p/m-Xylene	7.1		ug/m3	0.90	0.90	1
o-Xylene	4.6		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	610		ug/m3	10	10.	1
C9-C10 Aromatics Total	180		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		50-200
Bromochloromethane	98		50-200
Chlorobenzene-d5	98		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-05	Date Collected:	08/09/19 07:09
Client ID:	S-140A.2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 20:31
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	240		ug/m3	10	10.	1
Toluene	11		ug/m3	0.90	0.90	1
Ethylbenzene	3.0		ug/m3	0.90	0.90	1
p/m-Xylene	10		ug/m3	0.90	0.90	1
o-Xylene	5.1		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	700		ug/m3	10	10.	1
C9-C10 Aromatics Total	160		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		50-200
Bromochloromethane	97		50-200
Chlorobenzene-d5	98		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-06	Date Collected:	08/09/19 07:05
Client ID:	S-140A.3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 21:10
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	0.63		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	210		ug/m3	10	10.	1
Toluene	21		ug/m3	0.90	0.90	1
Ethylbenzene	2.3		ug/m3	0.90	0.90	1
p/m-Xylene	8.6		ug/m3	0.90	0.90	1
o-Xylene	3.7		ug/m3	0.90	0.90	1
Naphthalene	1.4		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	420		ug/m3	10	10.	1
C9-C10 Aromatics Total	96		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		50-200
Bromochloromethane	100		50-200
Chlorobenzene-d5	99		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-07	Date Collected:	08/09/19 07:03
Client ID:	S-140A.4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 21:49
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	0.64		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	210		ug/m3	10	10.	1
Toluene	23		ug/m3	0.90	0.90	1
Ethylbenzene	1.8		ug/m3	0.90	0.90	1
p/m-Xylene	8.0		ug/m3	0.90	0.90	1
o-Xylene	3.2		ug/m3	0.90	0.90	1
Naphthalene	1.8		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	270		ug/m3	10	10.	1
C9-C10 Aromatics Total	62		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		50-200
Bromochloromethane	103		50-200
Chlorobenzene-d5	102		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-08
Client ID: OUTDOOR CONTROL
Sample Location: BEVERLY, MA

Date Collected: 08/09/19 07:29
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 22:29
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
Toluene	1.3		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		50-200
Bromochloromethane	97		50-200
Chlorobenzene-d5	94		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-09	Date Collected:	08/09/19 07:44
Client ID:	ELLIOTT LANDING-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 23:10
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	13		ug/m3	10	10.	1
Toluene	1.3		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		50-200
Bromochloromethane	96		50-200
Chlorobenzene-d5	93		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-10	Date Collected:	08/09/19 07:50
Client ID:	ELLIOTT LANDING-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/19/19 23:49
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	18		ug/m3	10	10.	1
Toluene	5.2		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	1.1		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		50-200
Bromochloromethane	95		50-200
Chlorobenzene-d5	93		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-11	Date Collected:	08/09/19 07:48
Client ID:	ELLIOTT LANDING-3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/20/19 00:29
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	24		ug/m3	10	10.	1
Toluene	2.4		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	1.4		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	16		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	88		50-200
Bromochloromethane	94		50-200
Chlorobenzene-d5	94		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-12	Date Collected:	08/09/19 07:30
Client ID:	FIELD DUPLICATE-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/20/19 01:08
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	66		ug/m3	10	10.	1
Toluene	2.2		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	2.7		ug/m3	0.90	0.90	1
o-Xylene	1.0		ug/m3	0.90	0.90	1
Naphthalene	1.1		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	36		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	88		50-200
Bromochloromethane	94		50-200
Chlorobenzene-d5	92		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-13	Date Collected:	08/09/19 07:48
Client ID:	FIELD DUPLICATE-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/20/19 01:48
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	38		ug/m3	10	10.	1
Toluene	2.4		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	1.3		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	20		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		50-200
Bromochloromethane	95		50-200
Chlorobenzene-d5	92		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-14	Date Collected:	08/10/19 09:58
Client ID:	SV-4	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 02:28
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	19		ug/m3	10	10.	1
Toluene	1.3		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	2.8		ug/m3	0.90	0.90	1
o-Xylene	1.4		ug/m3	0.90	0.90	1
Naphthalene	10		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	67		ug/m3	10	10.	1
C9-C10 Aromatics Total	16		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	88		50-200
Bromochloromethane	94		50-200
Chlorobenzene-d5	93		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-15	Date Collected:	08/10/19 08:58
Client ID:	SV-5	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 03:07
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	1.4		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	38		ug/m3	10	10.	1
Toluene	1.5		ug/m3	0.90	0.90	1
Ethylbenzene	5.0		ug/m3	0.90	0.90	1
p/m-Xylene	26		ug/m3	0.90	0.90	1
o-Xylene	20		ug/m3	0.90	0.90	1
Naphthalene	1.1		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	170		ug/m3	10	10.	1
C9-C10 Aromatics Total	25		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		50-200
Bromochloromethane	94		50-200
Chlorobenzene-d5	101		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-16	Date Collected:	08/10/19 09:10
Client ID:	SV-6	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 03:46
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	1.8		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	120		ug/m3	10	10.	1
Toluene	4.1		ug/m3	0.90	0.90	1
Ethylbenzene	8.3		ug/m3	0.90	0.90	1
p/m-Xylene	37		ug/m3	0.90	0.90	1
o-Xylene	25		ug/m3	0.90	0.90	1
Naphthalene	100		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	190		ug/m3	10	10.	1
C9-C10 Aromatics Total	89		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		50-200
Bromochloromethane	98		50-200
Chlorobenzene-d5	102		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-17	Date Collected:	08/10/19 09:53
Client ID:	SV-7	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 06:00
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	14		ug/m3	10	10.	1
Toluene	ND		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	1.3		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	39		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		50-200
Bromochloromethane	102		50-200
Chlorobenzene-d5	98		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-18	Date Collected:	08/10/19 08:50
Client ID:	SG-1	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 06:39
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	19		ug/m3	10	10.	1
Toluene	1.4		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	1.0		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	73		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		50-200
Bromochloromethane	100		50-200
Chlorobenzene-d5	97		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-19	Date Collected:	08/10/19 10:54
Client ID:	SG-2	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 07:19
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	12		ug/m3	10	10.	1
Toluene	ND		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	29		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		50-200
Bromochloromethane	96		50-200
Chlorobenzene-d5	93		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID:	L1936134-20	Date Collected:	08/10/19 11:04
Client ID:	SG-3	Date Received:	08/12/19
Sample Location:	BEVERLY, MA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 07:58
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	0.77		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	78		ug/m3	10	10.	1
Toluene	2.1		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	1.8		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	86		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		50-200
Bromochloromethane	96		50-200
Chlorobenzene-d5	95		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

SAMPLE RESULTS

Lab ID: L1936134-21
Client ID: SG FIELD DUPLICATE
Sample Location: BEVERLY, MA

Date Collected: 08/10/19 08:58
Date Received: 08/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Analytical Method: 96,APH
Analytical Date: 08/20/19 06:36
Analyst: RY

Quality Control Information

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	1.3		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	35		ug/m3	10	10.	1
Toluene	1.5		ug/m3	0.90	0.90	1
Ethylbenzene	4.7		ug/m3	0.90	0.90	1
p/m-Xylene	24		ug/m3	0.90	0.90	1
o-Xylene	18		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	130		ug/m3	10	10.	1
C9-C10 Aromatics Total	46		ug/m3	10	10.	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	105		50-200
Bromochloromethane	106		50-200
Chlorobenzene-d5	108		50-200

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 96,APH
Analytical Date: 08/19/19 15:02
Analyst: RY

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbons in Air - Mansfield Lab for sample(s):	01-20	Batch:	WG1274117-4		
1,3-Butadiene	ND		ug/m3	0.50	0.50
Methyl tert butyl ether	ND		ug/m3	0.70	0.70
Benzene	ND		ug/m3	0.60	0.60
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.
Toluene	ND		ug/m3	0.90	0.90
Ethylbenzene	ND		ug/m3	0.90	0.90
p/m-Xylene	ND		ug/m3	0.90	0.90
o-Xylene	ND		ug/m3	0.90	0.90
Naphthalene	ND		ug/m3	1.1	1.1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.
C9-C10 Aromatics Total	ND		ug/m3	10	10.



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 96,APH
Analytical Date: 08/19/19 15:57
Analyst: RY

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbons in Air - Mansfield Lab for sample(s):	21		Batch:	WG1274120-4	
1,3-Butadiene	ND		ug/m3	0.50	0.50
Methyl tert butyl ether	ND		ug/m3	0.70	0.70
Benzene	ND		ug/m3	0.60	0.60
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.
Toluene	ND		ug/m3	0.90	0.90
Ethylbenzene	ND		ug/m3	0.90	0.90
p/m-Xylene	ND		ug/m3	0.90	0.90
o-Xylene	ND		ug/m3	0.90	0.90
Naphthalene	ND		ug/m3	1.1	1.1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.
C9-C10 Aromatics Total	ND		ug/m3	10	10.

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 01-20 Batch: WG1274117-3								
1,3-Butadiene	102		-		70-130	-		
Methyl tert butyl ether	100		-		70-130	-		
Benzene	102		-		70-130	-		
C5-C8 Aliphatics, Adjusted	104		-		70-130	-		
Toluene	102		-		70-130	-		
Ethylbenzene	108		-		70-130	-		
p/m-Xylene	103		-		70-130	-		
o-Xylene	108		-		70-130	-		
Naphthalene	122		-		50-150	-		
C9-C12 Aliphatics, Adjusted	114		-		70-130	-		
C9-C10 Aromatics Total	97		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 21 Batch: WG1274120-3								
1,3-Butadiene	90		-		70-130	-		
Methyl tert butyl ether	80		-		70-130	-		
Benzene	92		-		70-130	-		
C5-C8 Aliphatics, Adjusted	89		-		70-130	-		
Toluene	81		-		70-130	-		
Ethylbenzene	81		-		70-130	-		
p/m-Xylene	78		-		70-130	-		
o-Xylene	84		-		70-130	-		
Naphthalene	109		-		50-150	-		
C9-C12 Aliphatics, Adjusted	88		-		70-130	-		
C9-C10 Aromatics Total	74		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1274117-5 QC Sample: L1936134-04 Client ID: S-140A.1						
1,3-Butadiene	ND	ND	ug/m3	NC		30
Methyl tert butyl ether	ND	ND	ug/m3	NC		30
Benzene	ND	ND	ug/m3	NC		30
C5-C8 Aliphatics, Adjusted	250	250	ug/m3	0		30
Toluene	8.0	8.1	ug/m3	1		30
Ethylbenzene	2.1	2.1	ug/m3	0		30
p/m-Xylene	7.1	7.3	ug/m3	3		30
o-Xylene	4.6	4.7	ug/m3	2		30
Naphthalene	ND	ND	ug/m3	NC		30
C9-C12 Aliphatics, Adjusted	610	610	ug/m3	0		30
C9-C10 Aromatics Total	180	180	ug/m3	0		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbons in Air - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1274120-5 QC Sample: L1936865-02 Client ID: DUP Sample						
1,3-Butadiene	ND	ND	ug/m3	NC		30
Methyl tert butyl ether	ND	ND	ug/m3	NC		30
Benzene	ND	ND	ug/m3	NC		30
C5-C8 Aliphatics, Adjusted	57	56	ug/m3	2		30
Toluene	3.5	3.3	ug/m3	6		30
Ethylbenzene	1.0	0.94	ug/m3	6		30
p/m-Xylene	3.3	3.1	ug/m3	6		30
o-Xylene	1.7	1.6	ug/m3	6		30
Naphthalene	ND	ND	ug/m3	NC		30
C9-C12 Aliphatics, Adjusted	1900	1800	ug/m3	5		30
C9-C10 Aromatics Total	50	49	ug/m3	2		30

Project Name: CUMMINGS BEVERLY

Serial_No:08201917:12

Project Number: CUMMINGS BEVERLY

Lab Number: L1936134

Report Date: 08/20/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1936134-01	S-135C.1	01116	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.4	3
L1936134-01	S-135C.1	926	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.6	-3.9	-	-	-	-
L1936134-02	S-135C.2	0328	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.5	6
L1936134-02	S-135C.2	2932	6.0L Can	08/06/19	298509	L1933623-08	Pass	-29.7	-4.4	-	-	-	-
L1936134-03	S-135C.3	0208	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.6	9
L1936134-03	S-135C.3	1627	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.3	-5.8	-	-	-	-
L1936134-04	S-140A.1	0234	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.3	0
L1936134-04	S-140A.1	977	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.6	-5.8	-	-	-	-
L1936134-05	S-140A.2	0550	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.2	3
L1936134-05	S-140A.2	594	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.4	-7.1	-	-	-	-
L1936134-06	S-140A.3	0850	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.3	0
L1936134-06	S-140A.3	1937	6.0L Can	08/06/19	298509	L1933623-08	Pass	-29.7	-4.9	-	-	-	-
L1936134-07	S-140A.4	01222	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.6	9
L1936134-07	S-140A.4	2961	6.0L Can	08/06/19	298509	L1933623-08	Pass	-29.6	0.0	-	-	-	-
L1936134-08	OUTDOOR CONTROL	0837	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.7	11

Project Name: CUMMINGS BEVERLY

Serial_No:08201917:12

Project Number: CUMMINGS BEVERLY

Lab Number: L1936134

Report Date: 08/20/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1936134-08	OUTDOOR CONTROL	2774	6.0L Can	08/06/19	298509	L1933623-08	Pass	-29.7	-9.1	-	-	-	-
L1936134-09	ELLIOTT LANDING-1	0836	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.6	9
L1936134-09	ELLIOTT LANDING-1	759	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.6	-8.9	-	-	-	-
L1936134-10	ELLIOTT LANDING-2	01203	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.4	3
L1936134-10	ELLIOTT LANDING-2	2102	6.0L Can	08/06/19	298509	L1933623-08	Pass	-29.6	-5.2	-	-	-	-
L1936134-11	ELLIOTT LANDING-3	0776	Flow 4	08/06/19	298509		-	-	-	Pass	3.3	3.4	3
L1936134-11	ELLIOTT LANDING-3	2366	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.6	-7.7	-	-	-	-
L1936134-12	FIELD DUPLICATE-1	0382	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.0	10
L1936134-12	FIELD DUPLICATE-1	1603	6.0L Can	08/06/19	298509	L1933446-08	Pass	-29.8	-5.8	-	-	-	-
L1936134-13	FIELD DUPLICATE-2	0716	Flow 5	08/06/19	298509		-	-	-	Pass	3.3	3.4	3
L1936134-13	FIELD DUPLICATE-2	2485	6.0L Can	08/06/19	298509	L1933446-08	Pass	-28.5	-7.5	-	-	-	-
L1936134-14	SV-4	0199	Flow 2	08/06/19	298510		-	-	-	Pass	72	72	0
L1936134-14	SV-4	2424	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.5	-5.4	-	-	-	-
L1936134-15	SV-5	01013	Flow 2	08/06/19	298510		-	-	-	Pass	72	80	11
L1936134-15	SV-5	2040	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.5	-2.8	-	-	-	-

Project Name: CUMMINGS BEVERLY

Serial_No:08201917:12

Project Number: CUMMINGS BEVERLY

Lab Number: L1936134

Report Date: 08/20/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1936134-16	SV-6	01081	Flow 2	08/06/19	298510		-	-	-	Pass	72	77	7
L1936134-16	SV-6	494	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.6	-3.2	-	-	-	-
L1936134-17	SV-7	0765	Flow 2	08/06/19	298510		-	-	-	Pass	72	66	9
L1936134-17	SV-7	2589	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.6	-3.5	-	-	-	-
L1936134-18	SG-1	01135	Flow 2	08/06/19	298510		-	-	-	Pass	72	72	0
L1936134-18	SG-1	2339	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.7	0.0	-	-	-	-
L1936134-19	SG-2	01009	Flow 2	08/06/19	298510		-	-	-	Pass	72	73	1
L1936134-19	SG-2	140	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.7	-5.4	-	-	-	-
L1936134-20	SG-3	01011	Flow 2	08/06/19	298510		-	-	-	Pass	72	76	5
L1936134-20	SG-3	408	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.5	-4.2	-	-	-	-
L1936134-21	SG FIELD DUPLICATE	01136	Flow 2	08/06/19	298510		-	-	-	Pass	72	74	3
L1936134-21	SG FIELD DUPLICATE	2767	2.7L Can	08/06/19	298510	L1934567-02	Pass	-29.6	-2.8	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1933446-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 2005 SHELF 45	Date Received:	07/29/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 07/30/19 18:44
 Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.060	ND	0.707	0.212		1
Propylene	ND	0.500	0.067	ND	0.861	0.115		1
Propane	ND	0.500	0.149	ND	0.902	0.269		1
Dichlorodifluoromethane	ND	0.200	0.060	ND	0.989	0.296		1
Chloromethane	ND	0.200	0.074	ND	0.413	0.152		1
Freon-114	ND	0.200	0.061	ND	1.40	0.426		1
Methanol	ND	5.00	0.616	ND	6.55	0.807		1
Vinyl chloride	ND	0.200	0.060	ND	0.511	0.153		1
1,3-Butadiene	ND	0.200	0.063	ND	0.442	0.139		1
Butane	ND	0.200	0.066	ND	0.475	0.157		1
Bromomethane	ND	0.200	0.071	ND	0.777	0.277		1
Chloroethane	ND	0.200	0.079	ND	0.528	0.207		1
Ethanol	ND	5.00	0.788	ND	9.42	1.48		1
Dichlorofluoromethane	ND	0.200	0.084	ND	0.842	0.351		1
Vinyl bromide	ND	0.200	0.070	ND	0.874	0.304		1
Acrolein	ND	0.500	0.055	ND	1.15	0.125		1
Acetone	ND	1.00	0.544	ND	2.38	1.29		1
Acetonitrile	ND	0.200	0.075	ND	0.336	0.125		1
Trichlorofluoromethane	ND	0.200	0.076	ND	1.12	0.424		1
Isopropanol	ND	0.500	0.348	ND	1.23	0.855		1
Acrylonitrile	ND	0.500	0.054	ND	1.09	0.118		1
Pentane	ND	0.200	0.066	ND	0.590	0.194		1
Ethyl ether	ND	0.200	0.080	ND	0.606	0.241		1
1,1-Dichloroethene	ND	0.200	0.061	ND	0.793	0.243		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.045	ND	1.52	0.135		1
Methylene chloride	ND	0.500	0.070	ND	1.74	0.243		1
3-Chloropropene	ND	0.200	0.052	ND	0.626	0.162		1
Carbon disulfide	ND	0.200	0.055	ND	0.623	0.172		1
Freon-113	ND	0.200	0.065	ND	1.53	0.497		1
trans-1,2-Dichloroethene	ND	0.200	0.065	ND	0.793	0.256		1
1,1-Dichloroethane	ND	0.200	0.063	ND	0.809	0.254		1
Methyl tert butyl ether	ND	0.200	0.057	ND	0.721	0.206		1
Vinyl acetate	ND	1.00	0.051	ND	3.52	0.179		1
Xylenes, total	ND	0.600	0.051	ND	0.869	0.222		1
2-Butanone	ND	0.500	0.048	ND	1.47	0.140		1
cis-1,2-Dichloroethene	ND	0.200	0.120	ND	0.793	0.476		1
Ethyl Acetate	ND	0.500	0.137	ND	1.80	0.494		1
Chloroform	ND	0.200	0.063	ND	0.977	0.309		1
Tetrahydrofuran	ND	0.500	0.063	ND	1.47	0.187		1
2,2-Dichloropropane	ND	0.200	0.051	ND	0.924	0.238		1
1,2-Dichloroethane	ND	0.200	0.063	ND	0.809	0.257		1
n-Hexane	ND	0.200	0.036	ND	0.705	0.128		1
Diisopropyl ether	ND	0.200	0.098	ND	0.836	0.409		1
tert-Butyl Ethyl Ether	ND	0.200	0.066	ND	0.836	0.274		1
1,2-Dichloroethene (total)	ND	1.00	0.065	ND	1.00	0.256		1
1,1,1-Trichloroethane	ND	0.200	0.055	ND	1.09	0.302		1
1,1-Dichloropropene	ND	0.200	0.051	ND	0.908	0.232		1
Benzene	ND	0.200	0.049	ND	0.639	0.158		1
Carbon tetrachloride	ND	0.200	0.056	ND	1.26	0.353		1
Cyclohexane	ND	0.200	0.039	ND	0.688	0.134		1
tert-Amyl Methyl Ether	ND	0.200	0.053	ND	0.836	0.222		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.424		1
1,2-Dichloropropane	ND	0.200	0.062	ND	0.924	0.287		1
Bromodichloromethane	ND	0.200	0.053	ND	1.34	0.358		1
1,4-Dioxane	ND	0.200	0.090	ND	0.721	0.325		1
Trichloroethene	ND	0.200	0.051	ND	1.07	0.275		1
2,2,4-Trimethylpentane	ND	0.200	0.039	ND	0.934	0.183		1
Methyl Methacrylate	ND	0.500	0.060	ND	2.05	0.246		1
Heptane	ND	0.200	0.053	ND	0.820	0.217		1
cis-1,3-Dichloropropene	ND	0.200	0.046	ND	0.908	0.209		1
4-Methyl-2-pentanone	ND	0.500	0.046	ND	2.05	0.190		1
trans-1,3-Dichloropropene	ND	0.200	0.049	ND	0.908	0.223		1
1,1,2-Trichloroethane	ND	0.200	0.069	ND	1.09	0.379		1
Toluene	ND	0.200	0.055	ND	0.754	0.205		1
1,3-Dichloropropane	ND	0.200	0.060	ND	0.924	0.278		1
2-Hexanone	ND	0.200	0.066	ND	0.820	0.271		1
Dibromochloromethane	ND	0.200	0.067	ND	1.70	0.572		1
1,2-Dibromoethane	ND	0.200	0.058	ND	1.54	0.443		1
Butyl acetate	ND	0.500	0.127	ND	2.38	0.604		1
Octane	ND	0.200	0.050	ND	0.934	0.231		1
Tetrachloroethene	ND	0.200	0.067	ND	1.36	0.456		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.059	ND	1.37	0.406		1
Chlorobenzene	ND	0.200	0.063	ND	0.921	0.292		1
Ethylbenzene	ND	0.200	0.047	ND	0.869	0.203		1
p/m-Xylene	ND	0.400	0.101	ND	1.74	0.439		1
Bromoform	ND	0.200	0.071	ND	2.07	0.735		1
Styrene	ND	0.200	0.048	ND	0.852	0.203		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.061	ND	1.37	0.420		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.051	ND	0.869	0.222		1
1,2,3-Trichloropropane	ND	0.200	0.059	ND	1.21	0.357		1
Nonane	ND	0.200	0.052	ND	1.05	0.274		1
Isopropylbenzene	ND	0.200	0.052	ND	0.983	0.254		1
Bromobenzene	ND	0.200	0.064	ND	0.793	0.254		1
2-Chlorotoluene	ND	0.200	0.052	ND	1.04	0.268		1
n-Propylbenzene	ND	0.200	0.046	ND	0.983	0.227		1
4-Chlorotoluene	ND	0.200	0.057	ND	1.04	0.297		1
4-Ethyltoluene	ND	0.200	0.041	ND	0.983	0.202		1
1,3,5-Trimethylbenzene	ND	0.200	0.074	ND	0.983	0.362		1
tert-Butylbenzene	ND	0.200	0.046	ND	1.10	0.255		1
1,2,4-Trimethylbenzene	ND	0.200	0.042	ND	0.983	0.205		1
Decane	ND	0.200	0.045	ND	1.16	0.261		1
Benzyl chloride	ND	0.200	0.055	ND	1.04	0.282		1
1,3-Dichlorobenzene	ND	0.200	0.066	ND	1.20	0.396		1
1,4-Dichlorobenzene	ND	0.200	0.068	ND	1.20	0.409		1
sec-Butylbenzene	ND	0.200	0.047	ND	1.10	0.257		1
p-Isopropyltoluene	ND	0.200	0.058	ND	1.10	0.318		1
1,2-Dichlorobenzene	ND	0.200	0.065	ND	1.20	0.393		1
n-Butylbenzene	ND	0.200	0.049	ND	1.10	0.269		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.056	ND	1.93	0.538		1
Undecane	ND	0.200	0.048	ND	1.28	0.306		1
Dodecane	ND	0.200	0.072	ND	1.39	0.501		1
1,2,4-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.563		1
Naphthalene	ND	0.200	0.098	ND	1.05	0.516		1
1,2,3-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.561		1
Hexachlorobutadiene	ND	0.200	0.056	ND	2.13	0.592		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	Qualifier
Volatile Organics in Air - Mansfield Lab							

	Results	Qualifier	Units	RDL	Dilution Factor
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Tentatively Identified Compounds

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1933446-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 2005 SHELF 45	Date Received:	07/29/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix:	Air
Anaytical Method:	48,TO-15-SIM
Analytical Date:	07/30/19 18:44
Analyst:	TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Dichlorodifluoromethane	ND	0.200	0.011	ND	0.989	0.055	1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099	1
Freon-114	ND	0.050	0.012	ND	0.349	0.081	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Acetone	ND	1.00	0.366	ND	2.38	0.869	1
Trichlorofluoromethane	ND	0.050	0.011	ND	0.281	0.064	1
Acrylonitrile	ND	0.500	0.025	ND	1.09	0.054	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
Freon-113	ND	0.050	0.013	ND	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
2-Butanone	ND	0.500	0.016	ND	1.47	0.047	1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Chloroform	ND	0.020	0.005	ND	0.098	0.024	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	ND	0.100	0.019	ND	0.319	0.061	1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	ND	0.500	0.005	ND	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	ND	0.050	0.006	ND	0.188	0.023	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054	1
1,1,1,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.041	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1
Ethylbenzene	ND	0.020	0.007	ND	0.087	0.030	1
p/m-Xylene	ND	0.040	0.007	ND	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	ND	0.020	0.007	ND	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	ND	0.020	0.008	ND	0.087	0.035	1
Isopropylbenzene	ND	0.200	0.007	ND	0.983	0.034	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049	1
1,3,5-Trimethylbenzene	ND	0.020	0.005	ND	0.098	0.025	1
1,2,4-Trimethylbenzene	ND	0.020	0.007	ND	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
sec-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933446

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933446-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 2005 SHELF 45 Date Received: 07/29/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
p-Isopropyltoluene	ND	0.200	0.007	ND	1.10	0.038	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
n-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	ND	0.050	0.008	ND	0.262	0.042	1
1,2,3-Trichlorobenzene	ND	0.050	0.019	ND	0.371	0.141	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1933623-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 930 SHELF 46	Date Received:	07/30/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 07/30/19 22:45
 Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.060	ND	0.707	0.212		1
Propylene	ND	0.500	0.067	ND	0.861	0.115		1
Propane	ND	0.500	0.149	ND	0.902	0.269		1
Dichlorodifluoromethane	ND	0.200	0.060	ND	0.989	0.296		1
Chloromethane	ND	0.200	0.074	ND	0.413	0.152		1
Freon-114	ND	0.200	0.061	ND	1.40	0.426		1
Methanol	ND	5.00	0.616	ND	6.55	0.807		1
Vinyl chloride	ND	0.200	0.060	ND	0.511	0.153		1
1,3-Butadiene	ND	0.200	0.063	ND	0.442	0.139		1
Butane	ND	0.200	0.066	ND	0.475	0.157		1
Bromomethane	ND	0.200	0.071	ND	0.777	0.277		1
Chloroethane	ND	0.200	0.079	ND	0.528	0.207		1
Ethanol	ND	5.00	0.788	ND	9.42	1.48		1
Dichlorofluoromethane	ND	0.200	0.084	ND	0.842	0.351		1
Vinyl bromide	ND	0.200	0.070	ND	0.874	0.304		1
Acrolein	ND	0.500	0.055	ND	1.15	0.125		1
Acetone	ND	1.00	0.544	ND	2.38	1.29		1
Acetonitrile	ND	0.200	0.075	ND	0.336	0.125		1
Trichlorofluoromethane	ND	0.200	0.076	ND	1.12	0.424		1
Isopropanol	ND	0.500	0.348	ND	1.23	0.855		1
Acrylonitrile	ND	0.500	0.054	ND	1.09	0.118		1
Pentane	ND	0.200	0.066	ND	0.590	0.194		1
Ethyl ether	ND	0.200	0.080	ND	0.606	0.241		1
1,1-Dichloroethene	ND	0.200	0.061	ND	0.793	0.243		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.045	ND	1.52	0.135		1
Methylene chloride	ND	0.500	0.070	ND	1.74	0.243		1
3-Chloropropene	ND	0.200	0.052	ND	0.626	0.162		1
Carbon disulfide	ND	0.200	0.055	ND	0.623	0.172		1
Freon-113	ND	0.200	0.065	ND	1.53	0.497		1
trans-1,2-Dichloroethene	ND	0.200	0.065	ND	0.793	0.256		1
1,1-Dichloroethane	ND	0.200	0.063	ND	0.809	0.254		1
Methyl tert butyl ether	ND	0.200	0.057	ND	0.721	0.206		1
Vinyl acetate	ND	1.00	0.051	ND	3.52	0.179		1
Xylenes, total	ND	0.600	0.051	ND	0.869	0.222		1
2-Butanone	ND	0.500	0.048	ND	1.47	0.140		1
cis-1,2-Dichloroethene	ND	0.200	0.120	ND	0.793	0.476		1
Ethyl Acetate	ND	0.500	0.137	ND	1.80	0.494		1
Chloroform	ND	0.200	0.063	ND	0.977	0.309		1
Tetrahydrofuran	ND	0.500	0.063	ND	1.47	0.187		1
2,2-Dichloropropane	ND	0.200	0.051	ND	0.924	0.238		1
1,2-Dichloroethane	ND	0.200	0.063	ND	0.809	0.257		1
n-Hexane	ND	0.200	0.036	ND	0.705	0.128		1
Diisopropyl ether	ND	0.200	0.098	ND	0.836	0.409		1
tert-Butyl Ethyl Ether	ND	0.200	0.066	ND	0.836	0.274		1
1,2-Dichloroethene (total)	ND	1.00	0.065	ND	1.00	0.256		1
1,1,1-Trichloroethane	ND	0.200	0.055	ND	1.09	0.302		1
1,1-Dichloropropene	ND	0.200	0.051	ND	0.908	0.232		1
Benzene	ND	0.200	0.049	ND	0.639	0.158		1
Carbon tetrachloride	ND	0.200	0.056	ND	1.26	0.353		1
Cyclohexane	ND	0.200	0.039	ND	0.688	0.134		1
tert-Amyl Methyl Ether	ND	0.200	0.053	ND	0.836	0.222		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.424		1
1,2-Dichloropropane	ND	0.200	0.062	ND	0.924	0.287		1
Bromodichloromethane	ND	0.200	0.053	ND	1.34	0.358		1
1,4-Dioxane	ND	0.200	0.090	ND	0.721	0.325		1
Trichloroethene	ND	0.200	0.051	ND	1.07	0.275		1
2,2,4-Trimethylpentane	ND	0.200	0.039	ND	0.934	0.183		1
Methyl Methacrylate	ND	0.500	0.060	ND	2.05	0.246		1
Heptane	ND	0.200	0.053	ND	0.820	0.217		1
cis-1,3-Dichloropropene	ND	0.200	0.046	ND	0.908	0.209		1
4-Methyl-2-pentanone	ND	0.500	0.046	ND	2.05	0.190		1
trans-1,3-Dichloropropene	ND	0.200	0.049	ND	0.908	0.223		1
1,1,2-Trichloroethane	ND	0.200	0.069	ND	1.09	0.379		1
Toluene	ND	0.200	0.055	ND	0.754	0.205		1
1,3-Dichloropropane	ND	0.200	0.060	ND	0.924	0.278		1
2-Hexanone	ND	0.200	0.066	ND	0.820	0.271		1
Dibromochloromethane	ND	0.200	0.067	ND	1.70	0.572		1
1,2-Dibromoethane	ND	0.200	0.058	ND	1.54	0.443		1
Butyl acetate	ND	0.500	0.127	ND	2.38	0.604		1
Octane	ND	0.200	0.050	ND	0.934	0.231		1
Tetrachloroethene	ND	0.200	0.067	ND	1.36	0.456		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.059	ND	1.37	0.406		1
Chlorobenzene	ND	0.200	0.063	ND	0.921	0.292		1
Ethylbenzene	ND	0.200	0.047	ND	0.869	0.203		1
p/m-Xylene	ND	0.400	0.101	ND	1.74	0.439		1
Bromoform	ND	0.200	0.071	ND	2.07	0.735		1
Styrene	ND	0.200	0.048	ND	0.852	0.203		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.061	ND	1.37	0.420		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.051	ND	0.869	0.222		1
1,2,3-Trichloropropane	ND	0.200	0.059	ND	1.21	0.357		1
Nonane	ND	0.200	0.052	ND	1.05	0.274		1
Isopropylbenzene	ND	0.200	0.052	ND	0.983	0.254		1
Bromobenzene	ND	0.200	0.064	ND	0.793	0.254		1
2-Chlorotoluene	ND	0.200	0.052	ND	1.04	0.268		1
n-Propylbenzene	ND	0.200	0.046	ND	0.983	0.227		1
4-Chlorotoluene	ND	0.200	0.057	ND	1.04	0.297		1
4-Ethyltoluene	ND	0.200	0.041	ND	0.983	0.202		1
1,3,5-Trimethylbenzene	ND	0.200	0.074	ND	0.983	0.362		1
tert-Butylbenzene	ND	0.200	0.046	ND	1.10	0.255		1
1,2,4-Trimethylbenzene	ND	0.200	0.042	ND	0.983	0.205		1
Decane	ND	0.200	0.045	ND	1.16	0.261		1
Benzyl chloride	ND	0.200	0.055	ND	1.04	0.282		1
1,3-Dichlorobenzene	ND	0.200	0.066	ND	1.20	0.396		1
1,4-Dichlorobenzene	ND	0.200	0.068	ND	1.20	0.409		1
sec-Butylbenzene	ND	0.200	0.047	ND	1.10	0.257		1
p-Isopropyltoluene	ND	0.200	0.058	ND	1.10	0.318		1
1,2-Dichlorobenzene	ND	0.200	0.065	ND	1.20	0.393		1
n-Butylbenzene	ND	0.200	0.049	ND	1.10	0.269		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.056	ND	1.93	0.538		1
Undecane	ND	0.200	0.048	ND	1.28	0.306		1
Dodecane	ND	0.200	0.072	ND	1.39	0.501		1
1,2,4-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.563		1
Naphthalene	ND	0.200	0.098	ND	1.05	0.516		1
1,2,3-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.561		1
Hexachlorobutadiene	ND	0.200	0.056	ND	2.13	0.592		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	Qualifier
Volatile Organics in Air - Mansfield Lab							

	Results	Qualifier	Units	RDL	
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Tentatively Identified Compounds

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1933623-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 930 SHELF 46	Date Received:	07/30/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix: Air
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 07/30/19 22:45
 Analyst: TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Dichlorodifluoromethane	ND	0.200	0.011	ND	0.989	0.055	1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099	1
Freon-114	ND	0.050	0.012	ND	0.349	0.081	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Acetone	ND	1.00	0.366	ND	2.38	0.869	1
Trichlorofluoromethane	ND	0.050	0.011	ND	0.281	0.064	1
Acrylonitrile	ND	0.500	0.025	ND	1.09	0.054	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
Freon-113	ND	0.050	0.013	ND	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
2-Butanone	ND	0.500	0.016	ND	1.47	0.047	1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Chloroform	ND	0.020	0.005	ND	0.098	0.024	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	ND	0.100	0.019	ND	0.319	0.061	1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	ND	0.500	0.005	ND	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	ND	0.050	0.006	ND	0.188	0.023	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054	1
1,1,1,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.041	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1
Ethylbenzene	ND	0.020	0.007	ND	0.087	0.030	1
p/m-Xylene	ND	0.040	0.007	ND	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	ND	0.020	0.007	ND	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	ND	0.020	0.008	ND	0.087	0.035	1
Isopropylbenzene	ND	0.200	0.007	ND	0.983	0.034	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049	1
1,3,5-Trimethylbenzene	ND	0.020	0.005	ND	0.098	0.025	1
1,2,4-Trimethylbenzene	ND	0.020	0.007	ND	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
sec-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1933623

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1933623-08 Date Collected: 07/29/19 09:00
 Client ID: CAN 930 SHELF 46 Date Received: 07/30/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
p-Isopropyltoluene	ND	0.200	0.007	ND	1.10	0.038	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
n-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	ND	0.050	0.008	ND	0.262	0.042	1
1,2,3-Trichlorobenzene	ND	0.050	0.019	ND	0.371	0.141	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1934567-02	Date Collected:	08/01/19 16:00
Client ID:	CAN 375 SHELF 8	Date Received:	08/02/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 08/04/19 02:41
 Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.060	ND	0.707	0.212		1
Propylene	ND	0.500	0.067	ND	0.861	0.115		1
Propane	ND	0.500	0.149	ND	0.902	0.269		1
Dichlorodifluoromethane	ND	0.200	0.060	ND	0.989	0.296		1
Chloromethane	ND	0.200	0.074	ND	0.413	0.152		1
Freon-114	ND	0.200	0.061	ND	1.40	0.426		1
Methanol	ND	5.00	0.616	ND	6.55	0.807		1
Vinyl chloride	ND	0.200	0.060	ND	0.511	0.153		1
1,3-Butadiene	ND	0.200	0.063	ND	0.442	0.139		1
Butane	ND	0.200	0.066	ND	0.475	0.157		1
Bromomethane	ND	0.200	0.071	ND	0.777	0.277		1
Chloroethane	ND	0.200	0.079	ND	0.528	0.207		1
Ethanol	ND	5.00	0.788	ND	9.42	1.48		1
Dichlorofluoromethane	ND	0.200	0.084	ND	0.842	0.351		1
Vinyl bromide	ND	0.200	0.070	ND	0.874	0.304		1
Acrolein	ND	0.500	0.055	ND	1.15	0.125		1
Acetone	ND	1.00	0.544	ND	2.38	1.29		1
Acetonitrile	ND	0.200	0.075	ND	0.336	0.125		1
Trichlorofluoromethane	ND	0.200	0.076	ND	1.12	0.424		1
Isopropanol	ND	0.500	0.348	ND	1.23	0.855		1
Acrylonitrile	ND	0.500	0.054	ND	1.09	0.118		1
Pentane	ND	0.200	0.066	ND	0.590	0.194		1
Ethyl ether	ND	0.200	0.080	ND	0.606	0.241		1
1,1-Dichloroethene	ND	0.200	0.061	ND	0.793	0.243		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.045	ND	1.52	0.135		1
Methylene chloride	ND	0.500	0.070	ND	1.74	0.243		1
3-Chloropropene	ND	0.200	0.052	ND	0.626	0.162		1
Carbon disulfide	ND	0.200	0.055	ND	0.623	0.172		1
Freon-113	ND	0.200	0.065	ND	1.53	0.497		1
trans-1,2-Dichloroethene	ND	0.200	0.065	ND	0.793	0.256		1
1,1-Dichloroethane	ND	0.200	0.063	ND	0.809	0.254		1
Methyl tert butyl ether	ND	0.200	0.057	ND	0.721	0.206		1
Vinyl acetate	ND	1.00	0.051	ND	3.52	0.179		1
Xylenes, total	ND	0.600	0.051	ND	0.869	0.222		1
2-Butanone	ND	0.500	0.048	ND	1.47	0.140		1
cis-1,2-Dichloroethene	ND	0.200	0.120	ND	0.793	0.476		1
Ethyl Acetate	ND	0.500	0.137	ND	1.80	0.494		1
Chloroform	ND	0.200	0.063	ND	0.977	0.309		1
Tetrahydrofuran	ND	0.500	0.063	ND	1.47	0.187		1
2,2-Dichloropropane	ND	0.200	0.051	ND	0.924	0.238		1
1,2-Dichloroethane	ND	0.200	0.063	ND	0.809	0.257		1
n-Hexane	ND	0.200	0.036	ND	0.705	0.128		1
Diisopropyl ether	ND	0.200	0.098	ND	0.836	0.409		1
tert-Butyl Ethyl Ether	ND	0.200	0.066	ND	0.836	0.274		1
1,2-Dichloroethene (total)	ND	1.00	0.065	ND	1.00	0.256		1
1,1,1-Trichloroethane	ND	0.200	0.055	ND	1.09	0.302		1
1,1-Dichloropropene	ND	0.200	0.051	ND	0.908	0.232		1
Benzene	ND	0.200	0.049	ND	0.639	0.158		1
Carbon tetrachloride	ND	0.200	0.056	ND	1.26	0.353		1
Cyclohexane	ND	0.200	0.039	ND	0.688	0.134		1
tert-Amyl Methyl Ether	ND	0.200	0.053	ND	0.836	0.222		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.424		1
1,2-Dichloropropane	ND	0.200	0.062	ND	0.924	0.287		1
Bromodichloromethane	ND	0.200	0.053	ND	1.34	0.358		1
1,4-Dioxane	ND	0.200	0.090	ND	0.721	0.325		1
Trichloroethene	ND	0.200	0.051	ND	1.07	0.275		1
2,2,4-Trimethylpentane	ND	0.200	0.039	ND	0.934	0.183		1
Methyl Methacrylate	ND	0.500	0.060	ND	2.05	0.246		1
Heptane	ND	0.200	0.053	ND	0.820	0.217		1
cis-1,3-Dichloropropene	ND	0.200	0.046	ND	0.908	0.209		1
4-Methyl-2-pentanone	ND	0.500	0.046	ND	2.05	0.190		1
trans-1,3-Dichloropropene	ND	0.200	0.049	ND	0.908	0.223		1
1,1,2-Trichloroethane	ND	0.200	0.069	ND	1.09	0.379		1
Toluene	ND	0.200	0.055	ND	0.754	0.205		1
1,3-Dichloropropane	ND	0.200	0.060	ND	0.924	0.278		1
2-Hexanone	ND	0.200	0.066	ND	0.820	0.271		1
Dibromochloromethane	ND	0.200	0.067	ND	1.70	0.572		1
1,2-Dibromoethane	ND	0.200	0.058	ND	1.54	0.443		1
Butyl acetate	ND	0.500	0.127	ND	2.38	0.604		1
Octane	ND	0.200	0.050	ND	0.934	0.231		1
Tetrachloroethene	ND	0.200	0.067	ND	1.36	0.456		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.059	ND	1.37	0.406		1
Chlorobenzene	ND	0.200	0.063	ND	0.921	0.292		1
Ethylbenzene	ND	0.200	0.047	ND	0.869	0.203		1
p/m-Xylene	ND	0.400	0.101	ND	1.74	0.439		1
Bromoform	ND	0.200	0.071	ND	2.07	0.735		1
Styrene	ND	0.200	0.048	ND	0.852	0.203		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.061	ND	1.37	0.420		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.051	ND	0.869	0.222		1
1,2,3-Trichloropropane	ND	0.200	0.059	ND	1.21	0.357		1
Nonane	ND	0.200	0.052	ND	1.05	0.274		1
Isopropylbenzene	ND	0.200	0.052	ND	0.983	0.254		1
Bromobenzene	ND	0.200	0.064	ND	0.793	0.254		1
2-Chlorotoluene	ND	0.200	0.052	ND	1.04	0.268		1
n-Propylbenzene	ND	0.200	0.046	ND	0.983	0.227		1
4-Chlorotoluene	ND	0.200	0.057	ND	1.04	0.297		1
4-Ethyltoluene	ND	0.200	0.041	ND	0.983	0.202		1
1,3,5-Trimethylbenzene	ND	0.200	0.074	ND	0.983	0.362		1
tert-Butylbenzene	ND	0.200	0.046	ND	1.10	0.255		1
1,2,4-Trimethylbenzene	ND	0.200	0.042	ND	0.983	0.205		1
Decane	ND	0.200	0.045	ND	1.16	0.261		1
Benzyl chloride	ND	0.200	0.055	ND	1.04	0.282		1
1,3-Dichlorobenzene	ND	0.200	0.066	ND	1.20	0.396		1
1,4-Dichlorobenzene	ND	0.200	0.068	ND	1.20	0.409		1
sec-Butylbenzene	ND	0.200	0.047	ND	1.10	0.257		1
p-Isopropyltoluene	ND	0.200	0.058	ND	1.10	0.318		1
1,2-Dichlorobenzene	ND	0.200	0.065	ND	1.20	0.393		1
n-Butylbenzene	ND	0.200	0.049	ND	1.10	0.269		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.056	ND	1.93	0.538		1
Undecane	ND	0.200	0.048	ND	1.28	0.306		1
Dodecane	ND	0.200	0.072	ND	1.39	0.501		1
1,2,4-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.563		1
Naphthalene	ND	0.200	0.098	ND	1.05	0.516		1
1,2,3-Trichlorobenzene	ND	0.200	0.076	ND	1.48	0.561		1
Hexachlorobutadiene	ND	0.200	0.056	ND	2.13	0.592		1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Dilution Factor
	Results	RL	MDL	Results	RL	MDL	Qualifier
Volatile Organics in Air - Mansfield Lab							

Results	Qualifier	Units	RDL	Dilution Factor
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Tentatively Identified Compounds

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID:	L1934567-02	Date Collected:	08/01/19 16:00
Client ID:	CAN 375 SHELF 8	Date Received:	08/02/19
Sample Location:		Field Prep:	Not Specified

Sample Depth:

Matrix:	Air
Anaytical Method:	48,TO-15-SIM
Analytical Date:	08/04/19 02:41
Analyst:	TS

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab							
Dichlorodifluoromethane	ND	0.200	0.011	ND	0.989	0.055	1
Chloromethane	ND	0.200	0.048	ND	0.413	0.099	1
Freon-114	ND	0.050	0.012	ND	0.349	0.081	1
Vinyl chloride	ND	0.020	0.006	ND	0.051	0.015	1
1,3-Butadiene	ND	0.020	0.007	ND	0.044	0.016	1
Bromomethane	ND	0.020	0.008	ND	0.078	0.031	1
Chloroethane	ND	0.100	0.017	ND	0.264	0.045	1
Acetone	ND	1.00	0.366	ND	2.38	0.869	1
Trichlorofluoromethane	ND	0.050	0.011	ND	0.281	0.064	1
Acrylonitrile	ND	0.500	0.025	ND	1.09	0.054	1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Methylene chloride	ND	0.500	0.250	ND	1.74	0.869	1
Freon-113	ND	0.050	0.013	ND	0.383	0.097	1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024	1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028	1
Methyl tert butyl ether	ND	0.200	0.006	ND	0.721	0.022	1
2-Butanone	ND	0.500	0.016	ND	1.47	0.047	1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028	1
Chloroform	ND	0.020	0.005	ND	0.098	0.024	1
1,2-Dichloroethane	ND	0.020	0.005	ND	0.081	0.020	1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.033	1
Benzene	ND	0.100	0.019	ND	0.319	0.061	1
Carbon tetrachloride	ND	0.020	0.007	ND	0.126	0.044	1
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.037	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
Bromodichloromethane	ND	0.020	0.008	ND	0.134	0.054	1
1,4-Dioxane	ND	0.100	0.014	ND	0.360	0.051	1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038	1
cis-1,3-Dichloropropene	ND	0.020	0.006	ND	0.091	0.027	1
4-Methyl-2-pentanone	ND	0.500	0.005	ND	2.05	0.021	1
trans-1,3-Dichloropropene	ND	0.020	0.008	ND	0.091	0.036	1
1,1,2-Trichloroethane	ND	0.020	0.004	ND	0.109	0.022	1
Toluene	ND	0.050	0.006	ND	0.188	0.023	1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068	1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062	1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054	1
1,1,1,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.041	1
Chlorobenzene	ND	0.100	0.007	ND	0.461	0.032	1
Ethylbenzene	ND	0.020	0.007	ND	0.087	0.030	1
p/m-Xylene	ND	0.040	0.007	ND	0.174	0.030	1
Bromoform	ND	0.020	0.015	ND	0.207	0.155	1
Styrene	ND	0.020	0.007	ND	0.085	0.030	1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.048	1
o-Xylene	ND	0.020	0.008	ND	0.087	0.035	1
Isopropylbenzene	ND	0.200	0.007	ND	0.983	0.034	1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049	1
1,3,5-Trimethylbenzene	ND	0.020	0.005	ND	0.098	0.025	1
1,2,4-Trimethylbenzene	ND	0.020	0.007	ND	0.098	0.034	1
Benzyl chloride	ND	0.200	0.037	ND	1.04	0.192	1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.048	1
sec-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1



Project Name: BATCH CANISTER CERTIFICATION

Lab Number: L1934567

Project Number: CANISTER QC BAT

Report Date: 08/20/19

Air Canister Certification Results

Lab ID: L1934567-02 Date Collected: 08/01/19 16:00
 Client ID: CAN 375 SHELF 8 Date Received: 08/02/19
 Sample Location: Field Prep: Not Specified

Sample Depth:

Parameter	Results	ppbV		ug/m3		Qualifier	Dilution Factor
		RL	MDL	Results	RL		
Volatile Organics in Air by SIM - Mansfield Lab							
p-Isopropyltoluene	ND	0.200	0.007	ND	1.10	0.038	1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.036	1
n-Butylbenzene	ND	0.200	0.008	ND	1.10	0.044	1
1,2,4-Trichlorobenzene	ND	0.050	0.010	ND	0.371	0.074	1
Naphthalene	ND	0.050	0.008	ND	0.262	0.042	1
1,2,3-Trichlorobenzene	ND	0.050	0.019	ND	0.371	0.141	1
Hexachlorobutadiene	ND	0.050	0.007	ND	0.533	0.075	1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	95		60-140

AIR Petro Can Certification

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1933446
Report Date: 08/20/19

AIR CAN CERTIFICATION RESULTS

Lab ID:	L1933446-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 2005 SHELF 45	Date Received:	07/29/19
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air		
Analytical Method:	96,APH		
Analytical Date:	07/30/19 18:44		
Analyst:	EW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
Toluene	ND		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1933623
Report Date: 08/20/19

AIR CAN CERTIFICATION RESULTS

Lab ID:	L1933623-08	Date Collected:	07/29/19 09:00
Client ID:	CAN 930 SHELF 46	Date Received:	07/30/19
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air		
Analytical Method:	96,APH		
Analytical Date:	07/30/19 22:45		
Analyst:	EW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
Toluene	ND		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1934567
Report Date: 08/20/19

AIR CAN CERTIFICATION RESULTS

Lab ID:	L1934567-02	Date Collected:	08/01/19 16:00
Client ID:	CAN 375 SHELF 8	Date Received:	08/02/19
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Air		
Analytical Method:	96,APH		
Analytical Date:	08/04/19 02:41		
Analyst:	RY		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air						
1,3-Butadiene	ND		ug/m3	0.50	0.50	1
Methyl tert butyl ether	ND		ug/m3	0.70	0.70	1
Benzene	ND		ug/m3	0.60	0.60	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
Toluene	ND		ug/m3	0.90	0.90	1
Ethylbenzene	ND		ug/m3	0.90	0.90	1
p/m-Xylene	ND		ug/m3	0.90	0.90	1
o-Xylene	ND		ug/m3	0.90	0.90	1
Naphthalene	ND		ug/m3	1.1	1.1	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	10	10.	1
C9-C10 Aromatics Total	ND		ug/m3	10	10.	1



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Serial_No:08201917:12
Lab Number: L1936134
Report Date: 08/20/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1936134-01A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-02A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-03A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-04A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-05A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-06A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-07A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-08A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-09A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-10A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-11A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-12A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-LL(30),TO15-SIM(30)
L1936134-13A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-14A	Canister - 2.7 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-15A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-16A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-17A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-18A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-19A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-20A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)
L1936134-21A	Canister - 6 Liter	NA	NA			Y	Absent		APH-10(30),TO15-SIM(30)

*Values in parentheses indicate holding time in days

Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when using acetone as a solvent.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: CUMMINGS BEVERLY
Project Number: CUMMINGS BEVERLY

Lab Number: L1936134
Report Date: 08/20/19

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.
- 96 Method for the Determination of Air-Phase Petroleum Hydrocarbons (APH), MassDEP, December 2009, Revision 1 with QC Requirements & Performance Standards for the Analysis of APH by GC/MS under the Massachusetts Contingency Plan, WSC-CAM-IXA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**,
EPA 180.1, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**, **SM4500NO2-B**
EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

Non-Potable Water

SM4500H,B, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, EPA 351.1, **SM4500NO3-F**, EPA 353.2: Nitrate-N, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**, **EPA 300**: Chloride, Sulfate, Nitrate.
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**, **EPA 1600**, **EPA 1603**.

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8**: Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg**.
EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS CHAIN OF CUSTODY									PAGE 1 OF 4		Date Rec'd in Lab: <u>8/12/19</u>			ALPHA Job #: <u>L1936134</u>					
					Project Information				Report/Data Deliverables Information			Billing Information							
Project Name: Cummings Beverly					<input type="checkbox"/> FAX			<input checked="" type="checkbox"/> EMAIL		<input checked="" type="checkbox"/> Same as Client Info		PO #:							
Project Location: Beverly, MA					<input type="checkbox"/> ADEx			<input type="checkbox"/> Add'l Deliverables											
Client Information					Project #:				Regulatory Requirements/Report Limits										
Client: FSL Associates, Inc.					Project Manager: Bruce Hoskins				State/Fed		Program		Residential/Commercial						
Address: 358 Chestnut Hill Avenue					ALPHA Quote #:				EPA	RCRA	Residential								
Boston, MA 02135					Turn-Around-Time				MADEP	MCP	Residential								
Phone: (617) 232-0001					<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (only confirmed if pre-approved)														
Fax:					Date Due: Time:														
Email: bhoskins@fslassociates.com																			
<input type="checkbox"/> These samples have been Previously analyzed by Alpha										Analysis									
Other Project Specific Requirements/Comments:																			
<input type="checkbox"/> Project-Specific Target Compound List																			
<p>Please have report similar in format to the previous reports for this project, i.e., report J values, lowest analytical detection limit, list all method compounds, etc.</p>																			
All Columns Below Must Be Filled Out										Sample Specific Comments (i.e. PID)									
Alpha Lab Use Only	Sample ID	Collection					Sample Matrix*	Sampler Initials	Can Size	ID Can	ID Flow Controller	TO-16	TO-15 SIM	APH	Subtract non-petroleum HCs	FIXED GASES	Sulfides & Mercaptans by TO-15		
		End Date	Start Time	End Time	Initial Vac	Final Vac													
'36134-01	S-135C.1	8/9/2019	07:38	07:30	-29.77	-4.70	AA	KN	6 L	926	0116	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
02	S-135C.2	8/9/2019	07:34	07:28	-29.75	-4.58	AA	KN	6 L	2932	0328	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
03	S-135C.3	8/9/2019	07:33	07:27	-29.89	-5.98	AA	KN	6 L	1627	0208	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
04	S-140A.1	8/9/2019	07:19	07:01	-29.70	-5.95	AA	KN	6 L	977	0234	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
05	S-140A.2	8/9/2019	07:21	07:09	-29.70	-7.32	AA	KN	6 L	594	0550	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
06	S-140A.3	8/9/2019	07:22	07:05	-29.31	-4.90	AA	KN	6 L	1937	07850	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
*SAMPLE MATRIX CODES: AA = Ambient Air (Indoor/Outdoor) SV = Soil Vapor/Landfill Gas/SVE Other = Please Specify										Container Type								Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms	
										Relinquished By				Date/Time	Received By:				Date/Time
										<u>Releasor</u> <u>AAC</u>				8/12/19	<u>Receiv'r</u> <u>AAC</u>				8/12/19 13:00
										<u>Releasor</u> <u>AAC</u>				8/12/19 17:00	<u>Receiv'r</u> <u>AAC</u>				8/12/19 17:00
										<u>Releasor</u> <u>AAC</u>				8/12/19	<u>Receiv'r</u> <u>AAC</u>				8/12/19 17:00
										<u>Releasor</u> <u>AAC</u>				8/12/19 20:34	<u>Receiv'r</u> <u>AAC</u>				8/12/19 20:34



AIR ANALYSIS

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: EST Associates, Inc.

Address: 358 Chestnut Hill Avenue

Boston, MA 02134

Phone: (617) 923-2221

5

Email: kashin@kashin.ru

These samples have been Pre-empted by another study

Other Project Specific Requirements:

□ Project Specific Targets/Comments

All Columns Below Must Be Filled Out

Alpha Lab Use Only	Sample ID	Collection					Sample Matrix*	Sampler Initials	Can Size	ID Can	ID Flow Controller
		End Date	Start Time	End Time	Initial Vac	Final Vac					
07	S-140A.4	8/9/2019	07:23	07:03	-29.72	-0.34	AA	KN	6 L	2961	01222
08	Outdoor Control	8/9/2019	07:44	07:29	-30.03	-9.30	AA	KN	6 L	2774	0837
09	Elliott Landing-1	8/9/2019	08:08	07:44	-29.97	-6.94	AA	KN	6 L	759	0836
10	Elliott Landing-2	8/9/2019	08:13	07:50	-29.88	-3.51	AA	KN	6 L	2102	01203
11	Elliott Landing-3	8/9/2019	08:20	07:48	-29.86	-7.95	AA	KN	6 L	2366	0786
12	Field Duplicate_1	8/9/2019	07:38	07:30	-30.28	-6.51	AA	KN	6 L	1603	0382

***SAMPLE MATRIX CODES:**

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/landfill Gas/SVE

Other = Please Specify

From 100-072 03 May 2016 26 0000 1

Container Type	-	-	-	-	-	-	Ple legi Sam logg rou not amb resc sub to A erm
Relinquished By	Date/Time	Received By:			Date/Time		
<i>Mr. H. L.</i> Mark H. L. AAC	8/12/19	<i>John</i>	<i>John</i>	AAC	8/12/19 13:00		
<i>Mr. H. L.</i> Mark H. L. AAC	8/12/19 17:00	<i>John</i>	<i>John</i>	AAC	8/12/19 17:00		
<i>Mark H. L.</i> Mark H. L. AAC	8/12/19	<i>John</i>	<i>John</i>	AAC	8/12/19 19:00		
	8/12/19 20:34	<i>Dennis</i>	<i>Dennis</i>	AAC	8/12/19 20:34		

Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



AIR ANALYSIS

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048

Client Information

Client: FSL Associates, Inc.

Address: 358 Chestnut Hill Avenue

Boston, MA 02135

Phone: (617) 222-8881

E_{min}

Email: bhoskins@fsassociates.com

These samples have been previously analyzed by Alpha-

Other Project Specific Requirements/Comments

Project-Specific Target Compound List

All Columns Below Must Be Filled Out

Alpha Lab Use Only	Sample ID	Collection					Sample Matrix*	Sampler Initials	Can Size	ID Can	ID Flow Controller
		End Date	Start Time	End Time	Initial Vac	Final Vac					
13	Field Duplicate-2	8/9/2019	06:20	07:48	-28.66	-7.58	AA	KN	6 L	2485	0716
14	SV-4	8/10/19	09:28	09:58	-29.62	-5.23	SV	KN	2.7 L	2424	0199
15	SV-5	8/10/19	06:25	08:58	-28.81	-2.93	SV	KN	2.7 L	2040	01013
16	SV-6	8/10/19	08:43	09:10	-29.39	-4.42	SV	KN	2.7 L	494	01081
17	SV-7	8/10/19	09:15	09:53	-29.56	-3.68	SV	KN	2.7 L	2589	0765
18	SG-1	8/10/19	07:51	08:50	29.64	0.25	SV	KN	2.7 L	2339	01135

***SAMPLE MATRIX CODES:**

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Form 103-00 (II) Rev. 26-5-14

TO-15	TO-15 S	APH	FIXED G	Sulfides			Sample Specific Comments (i.e. PID)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-	-	-	-	-	-	-	
Received By:		Date/Time					Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.
1/12/19	Alpha AAI	8/12/19 13:06					
2/19/2020		8/12/19 13:27					
1/19	Alpha AAI	8/12/19 14:40					

Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



AIR ANALYSIS

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: FSI Associates, Inc.

Address: 358 Chestnut Hill Avenue

Boston, MA 02135

Phone: (617) 333-0001

50

Email: bblockin@fslmaxx.dts.com

Project Information

Project Name: Cummings Beverly

Project Location: Beverly, MA

Project #

Project Manager: Bruce Hoskins

ALPHA Quote #

Turn-Around-Time

Standard Rush (only confirmed if pre-approved)

For more information about the study, please contact Dr. Michael J. Koenig at (314) 747-2146 or via e-mail at koenig@dfci.harvard.edu.

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List

All Columns Below Must Be Filled Out

***SAMPLE MATRIX CODES:**

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Farm 181-02 (0) Rev. 28-Sept-11

Container Type - - - - -

Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Container Type								
Relinquished By	Date/Time	Received By	Date/Time	Please print clearly & legibly and completely. Samples cannot be logged in and turn around time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms				
Ben Hark	5/12/19	Mark	5/12/19 13:00					
Mark AAC	5/12/19 13:00	Mark	5/12/19 13:17					
CR	5/12/19	Mark	5/12/19 14:00					
Mark (DMS) AAC	5/12/19 20:34	David AAC	5/12/19 20:34					